1. award:
0.25 points

TB 01-01 As a service business, the operations management a...
As a service business, the operations management activities of an airline company have nothing in common with the operations management activities within a bicycle manufacturing company.

- True
- → False

True / False	*TB 01-01 As a service business, the operations management a...*

2. award:
0.25 points

TB 01-02 Operations managers are responsible for managing s...
Operations managers are responsible for managing systems that produce goods and/or provide services.

- → True
- False

True / False	*TB 01-02 Operations managers are responsible for managing s...*

3. award:
0.25 points

TB 01-03 Effectiveness refers to achieving intended goals w...
Effectiveness refers to achieving intended goals whereas efficiency refers to minimizing cost and time.

- → True
- False

True / False	*TB 01-03 Effectiveness refers to achieving intended goals w...*

4. award:
0.25 points

TB 01-04 Operations, marketing, and finance function indepe...
Operations, marketing, and finance function independently of each other in most organizations.

- True
- → False

True / False	*TB 01-04 Operations, marketing, and finance function indepe...*

5. award:
0.25 points

TB 01-05 The operations function exists only in firms that ...
The operations function exists only in firms that are goods-oriented.

- True
- → False

True / False	*TB 01-05 The operations function exists only in firms that ...*

6. award:
0.25 points

TB 01-06 Operations management pertains almost exclusively ...
Operations management pertains almost exclusively to the management of manufacturing operations.

- True
- → False

True / False	*TB 01-06 Operations management pertains almost exclusively ...*

7. award:
0.25 points

TB 01-07 Value-added refers to the cost of the inputs requi...
Value-added refers to the cost of the inputs required to produce goods and services.

- True
- → False

True / False	*TB 01-07 Value-added refers to the cost of the inputs requi...*

8. award:
0.25 points

TB 01-08 As long as a product is ready in advance of when c...
As long as a product is ready in advance of when customers demand it, the timing of when a product is manufactured does not influence the value-added.

- True
- → False

True / False	*TB 01-08 As long as a product is ready in advance of when c...*

9. award:
0.25 points

TB 01-09 Storing an item earlier than the scheduled deliver...
Storing an item earlier than the scheduled delivery date is an example of a value adding activity.

- True
- → False

True / False	*TB 01-09 Storing an item earlier than the scheduled deliver...*

10. award:
0.25 points

TB 01-10 Management information systems (MIS) are concerned...
Management information systems (MIS) are concerned with providing management with the information it needs to effectively manage.

- → True
- False

True / False	*TB 01-10 Management information systems (MIS) are concerned...*

11. award: **0.25 points**

TB 01-11 Operations management involves both system design ...
Operations management involves both system design and system operations.

→ ○ True
○ False

True / False	*TB 01-11 Operations management involves both system design ...*

12. award: **0.25 points**

TB 01-12 System design decisions have very little impact on...
System design decisions have very little impact on operations decisions.

○ True
→ ○ False

True / False	*TB 01-12 System design decisions have very little impact on...*

13. award: **0.25 points**

TB 01-13 An example of a system operations decision is choi...
An example of a system operations decision is choice of location.

○ True
→ ○ False

True / False	*TB 01-13 An example of a system operations decision is choi...*

14. award: **0.25 points**

TB 01-14 The operations manager has primary responsibility ...
The operations manager has primary responsibility for making operations system design decisions, such as system capacity and location of facilities.

○ True
→ ○ False

True / False	*TB 01-14 The operations manager has primary responsibility ...*

15. award: **0.25 points**

TB 01-15 Design decisions are usually strategic and long te...
Design decisions are usually strategic and long term, while planning decisions are tactical and medium term, and execution and control are operational and short term.

→ ○ True
○ False

True / False	*TB 01-15 Design decisions are usually strategic and long te...*

16. award: **0.25 points**

TB 01-16 Managing inventory levels is considered an organiz...
Managing inventory levels is considered an organizing operations management process.

- True
- → False

True / False	*TB 01-16 Managing inventory levels is considered an organiz...*

17. award: **0.25 points**

TB 01-17 A basic difference between manufacturing and servi...
A basic difference between manufacturing and service organizations is that service is act-oriented and manufacturing is goods-oriented.

- → True
- False

True / False	*TB 01-17 A basic difference between manufacturing and servi...*

18. award: **0.25 points**

TB 01-18 Service involves a much higher degree of customer ...
Service involves a much higher degree of customer contact than manufacturing.

- → True
- False

True / False	*TB 01-18 Service involves a much higher degree of customer ...*

19. award: **0.25 points**

TB 01-19 Service often requires a higher labour content, wh...
Service often requires a higher labour content, whereas manufacturing is more capital intensive.

- → True
- False

True / False	*TB 01-19 Service often requires a higher labour content, wh...*

20. award: **0.25 points**

TB 01-20 Measurement of productivity in service is more str...
Measurement of productivity in service is more straightforward than in manufacturing due to the high degree of uniformity of inputs.

- True
- → False

True / False	*TB 01-20 Measurement of productivity in service is more str...*

21. award: **0.25 points**

TB 01-21 Models are simplified representations of something...
Models are simplified representations of something and thus ignore important aspects of a situation.

- True
- → False

True / False	*TB 01-21 Models are simplified representations of something...*

22. award: **0.25 points**

TB 01-22 Quantitative techniques are often quick and practi...
Quantitative techniques are often quick and practical techniques for many decisions.

- True
- → False

True / False	*TB 01-22 Quantitative techniques are often quick and practi...*

23. award: **0.25 points**

TB 01-23 A systems approach emphasizes interrelationships a...
A systems approach emphasizes interrelationships among subsystems, but its main theme is that the whole is greater than the sum of its individual parts.

- → True
- False

True / False	*TB 01-23 A systems approach emphasizes interrelationships a...*

24. award: **0.25 points**

TB 01-24 Queuing techniques are useful for analyzing situat...
Queuing techniques are useful for analyzing situations in which waiting lines form.

- → True
- False

True / False	*TB 01-24 Queuing techniques are useful for analyzing situat...*

25. award: **0.25 points**

TB 01-25 It is essential to use the systems approach when s...
It is essential to use the systems approach when something is being designed, redesigned, implemented, improved, or otherwise changed.

- → True
- False

True / False	*TB 01-25 It is essential to use the systems approach when s...*

26. award: **0.25 points**

TB 01-26 A systems approach is to concentrate on efficiency...
A systems approach is to concentrate on efficiency within a subsystem and thereby achieve overall efficiency.

- True
- → False

True / False	*TB 01-26 A systems approach is to concentrate on efficiency...*

27. award: **0.25 points**

TB 01-27 Many operations management decisions can be descri...
Many operations management decisions can be described as trade-offs.

- → True
- False

True / False	*TB 01-27 Many operations management decisions can be descri...*

28. award: **0.25 points**

TB 01-28 The Pareto phenomenon is one of the most important...
The Pareto phenomenon is one of the most important and pervasive concepts that can be applied at all levels of management.

- → True
- False

True / False	*TB 01-28 The Pareto phenomenon is one of the most important...*

29. award: **0.25 points**

TB 01-29 Operations managers, who usually use quantitative ...
Operations managers, who usually use quantitative approaches, have no responsibility to make ethical decisions.

- True
- → False

True / False	*TB 01-29 Operations managers, who usually use quantitative ...*

30. award: **0.25 points**

TB 01-30 Prior to the Industrial Revolution, goods were pro...
Prior to the Industrial Revolution, goods were produced primarily by craftsmen or their apprentices using custom made parts.

- → True
- False

True / False	*TB 01-30 Prior to the Industrial Revolution, goods were pro...*

31. award: **0.25 points**

TB 01-31 Frederick Taylor is often referred to as the fath...
Frederick Taylor is often referred to as the "father of scientific management".

→ True
False

True / False	*TB 01-31 Frederick Taylor is often referred to as the fath...*

32. award: **0.25 points**

TB 01-32 he Human Relations Movement, which emphasized the...
The Human Relations Movement, which emphasized the importance of the human element in job design, was replaced by the more technical aspects of Scientific Management.

True
→ False

True / False	*TB 01-32 he Human Relations Movement, which emphasized the...*

33. award: **0.25 points**

TB 01-33 Among Ford's many contributions was the introducti...
Among Ford's many contributions was the introduction of mass production, using the concept of interchangeable parts and division of labour.

→ True
False

True / False	*TB 01-33 Among Ford's many contributions was the introducti...*

34. award: **0.25 points**

TB 01-34 The impact of globalization for manufacturing comp...
The impact of globalization for manufacturing companies has reduced in recent years because of the increasing cost to ship goods to foreign markets.

True
→ False

True / False	*TB 01-34 The impact of globalization for manufacturing comp...*

35. award: **0.25 points**

TB 01-35 Operations management encompasses all of the follo...
Operations management encompasses all of the following EXCEPT:

process design
capacity planning
scheduling
motivating employees
→ preparing financial statements

Multiple Choice	*TB 01-35 Operations management encompasses all of the follo...*

36. award: **0.25 points**

TB 01-36 Which of the following is a reason for studying op...
Which of the following is a reason for studying operations management?

- Operations management activities are at the core of all business organizations.
- Activities in all of the other areas of business organizations, such as accounting and marketing are interrelated with operations management activities.
- Most of all jobs are in operations management-related areas, such areas as customer service, inventory management, and more.
- → All of the choices (A, B, and C) are reasons.
- Only the first 2 choices (A and B) are reasons.

Multiple Choice	*TB 01-36 Which of the following is a reason for studying op...*

37. award: **0.25 points**

TB 01-37 The three primary functions that exist in most bus...
The three primary functions that exist in most business organizations are:

- manufacturing, production, and operations
- → operations, marketing, and finance
- operations, accounting, and marketing
- operations, production, and finance
- none of the choices are correct

Multiple Choice	*TB 01-37 The three primary functions that exist in most bus...*

38. award: **0.25 points**

TB 01-38 The three major functions of business organization...
The three major functions of business organizations:

- → perform different but related activities
- are related indirectly only
- must work together, but not very closely
- function independently of each other
- perform similar and related activities

Multiple Choice	*TB 01-38 The three major functions of business organization...*

39. award: **0.25 points**

TB 01-39 Which of the following is not a type of service op...
Which of the following is not a type of service operations?

- retail trade
- transportation and warehousing
- → fabricated metals
- banking
- hotels and restaurants

Multiple Choice	*TB 01-39 Which of the following is not a type of service op...*

40. award: **0.25 points**

TB 01-40 Measurements taken at various points in the transf...
Measurements taken at various points in the transformation process for control purposes are called:

- plans
- directions
- controls
- → feedback
- proposals

Multiple Choice	*TB 01-40 Measurements taken at various points in the transf...*

41. award: **0.25 points**

TB 01-41 Measuring process outputs at various points in ord...
Measuring process outputs at various points in order to compare outputs to previously established standards to determine if corrective action is needed is called:

- planning and directing
- directing and conversion
- → feedback and control
- controlling and leading
- leading and transformation

Multiple Choice	*TB 01-41 Measuring process outputs at various points in ord...*

42. award: **0.25 points**

TB 01-42 Value-added refers to:
Value-added refers to:

- the cost of inputs
- the price of outputs
- → the difference between cost of inputs and what customers are willing to pay
- the extra profit obtained from increased productivity
- all of the choices are correct

Multiple Choice	*TB 01-42 Value-added refers to:*

43. award: **0.25 points**

TB 01-43 Economic analysis of investment proposals, and pro...
Economic analysis of investment proposals, and provision of funds are activities associated with the:

- operation function
- marketing function
- purchasing function
- → finance function
- industrial engineering function

Multiple Choice	*TB 01-43 Economic analysis of investment proposals, and pro...*

44. award: **0.25 points**

TB 01-44 The marketing function's main concern is with:
The marketing function's main concern is with:

- producing goods or providing services
- → assessing customer wants and needs
- procuring materials, supplies, and equipment
- performing economic analysis of investment proposals
- securing monetary resources

Multiple Choice	*TB 01-44 The marketing function's main concern is with:*

45. award: **0.25 points**

TB 01-45 Scheduling, execution and control decision are usu...
Scheduling, execution and control decision are usually _____ and _____ term.

- strategic; long
- system design; medium
- forecasting; short
- → operational; short
- operational; long

Multiple Choice	*TB 01-45 Scheduling, execution and control decision are usu...*

46. award: **0.25 points**

TB 01-46 Which of the following does not relate to system d...
Which of the following does not relate to system design?

- system capacity
- location of facilities
- → inventory management
- process design
- arrangement of departmental work flow

Multiple Choice	*TB 01-46 Which of the following does not relate to system d...*

47. award: **0.25 points**

TB 01-47 Tactical operational activities involve making dec...
Tactical operational activities involve making decisions about all of the following EXCEPT:

- → location of facilities
- scheduling
- material requirements planning
- project management
- inventory management

Multiple Choice	*TB 01-47 Tactical operational activities involve making dec...*

48. award: **0.25 points**

TB 01-48 System capacity and location of facilities are exa...
System capacity and location of facilities are examples of:

- financial decisions
- tactical decisions
- → systems design decisions
- operational planning decisions
- forecasting decisions

Multiple Choice	*TB 01-48 System capacity and location of facilities are exa...*

49. award: **0.25 points**

TB 01-49 The responsibilities of operations managers classi...
The responsibilities of operations managers classified as planning activities are:

- inventory, production pace, quality and costs
- organizing departments, subcontracting, supplier contracts, and staffing
- forecasting, planning, organizing, and directing
- scheduling, job assignments, purchasing and logistics
- → capacity, location, layout and mix of products

Multiple Choice	*TB 01-49 The responsibilities of operations managers classi...*

50. award: **0.25 points**

TB 01-50 Which of the following responsibilities of operati...
Which of the following responsibilities of operations managers is considered a directing activity rather than a planning or control activity?

- selecting production equipment
- product mix decisions
- → scheduling workers
- inventory management
- layout of production facilities

Multiple Choice	*TB 01-50 Which of the following responsibilities of operati...*

51. award: **0.25 points**

TB 01-51 Of the following, which aspect of the evolution of...
Of the following, which aspect of the evolution of operations management is affiliated with Japanese manufacturing companies?

- → Total quality management
- Scientific management
- The human relations movement
- The Industrial Revolution
- Craft production

Multiple Choice	*TB 01-51 Of the following, which aspect of the evolution of...*

52. award: **0.25 points**

TB 01-52 Which is not a significant difference between manu...
Which is not a significant difference between manufacturing and service operations?

→ cost per unit
- uniformity of output
- labour content of jobs
- amount of customer contact
- measurement of productivity

Multiple Choice	*TB 01-52 Which is not a significant difference between manu...*

53. award: **0.25 points**

TB 01-53 Which of the following is not a characteristic of ...
Which of the following is not a characteristic of service operations?

- intangible output
- high customer contact
- high labour content

→ easy measurement of productivity
- low uniformity of output

Multiple Choice	*TB 01-53 Which of the following is not a characteristic of ...*

54. award: **0.25 points**

TB 01-54 The responsibilities of operations managers classi...
The responsibilities of operations managers classified as controlling activities are:

→ inventory, production pace, quality and costs
- organizing departments, subcontracting, supplier contracts, and staffing
- forecasting, planning, organizing, and directing
- scheduling, job assignments, purchasing and logistics
- capacity, location, layout and mix of products

Multiple Choice	*TB 01-54 The responsibilities of operations managers classi...*

55. award: **0.25 points**

TB 01-55 Which of the following is not a general approach t...
Which of the following is not a general approach to decision-making?

- establishing priorities

→ subjective approach
- analysis of trade-offs
- systems approach
- quantitative approaches

Multiple Choice	*TB 01-55 Which of the following is not a general approach t...*

56. award: **0.25 points**

TB 01-56 Which of the following is not a characteristic of ...

Which of the following is not a characteristic of models used to support decision making?

- They provide a simplified representation of real life.
- They ignore unimportant details, concentrating on the most important aspects of a situation.
- They may be based on mathematical representations or graphical schematics.
- They provide abstract representations of reality.
- → They are limited to representations of objective quantitative factors.

Multiple Choice	*TB 01-56 Which of the following is not a characteristic of ...*

57. award: **0.25 points**

TB 01-57 Which of the following is not true about the syste...

Which of the following is not true about the systems approach?

- It is almost always beneficial in decision making.
- It emphasizes interrelationships among subsystems.
- → It concentrates on efficiency within subsystems.
- It becomes essential whenever something is being redesigned or improved.
- The objectives of the whole take precedence over those of any one part.

Multiple Choice	*TB 01-57 Which of the following is not true about the syste...*

58. award: **0.25 points**

TB 01-58 Which is not a quantitative approach to problem so...

Which is not a quantitative approach to problem solving?

- linear programming
- queuing techniques
- statistical techniques
- → heuristics
- all of the choices are quantitative approaches.

Multiple Choice	*TB 01-58 Which is not a quantitative approach to problem so...*

59. award: **0.25 points**

TB 01-59 Dealing with the fact that certain aspects of any ...

Dealing with the fact that certain aspects of any management situation are more important than others is called:

- analysis of trade-offs
- sensitivity analysis
- → establishing priorities
- analysis of variance
- decision analysis

Multiple Choice	*TB 01-59 Dealing with the fact that certain aspects of any ...*

60. award: **0.25 points**

TB 01-60 The fact that improvements in a few key areas of o...

The fact that improvements in a few key areas of operations will have more impact than many improvements in less significant areas is referred to as the _____.

- forecasting approach
- → Pareto phenomenon
- productivity challenge
- analysis of trade-offs
- ethical dilemma

Multiple Choice	*TB 01-60 The fact that improvements in a few key areas of o...*

61. award: **0.25 points**

TB 01-61 Which of the following developments related to the...

Which of the following developments related to the historical evolution of operations management is the oldest?

- The human relations movement advocated by Mayo, Maslow and Hertzberg
- The introduction of the moving assembly line by Henry Ford
- Scientific management principles espoused by Frederick Taylor
- → The principle of division of labour documented in Adam Smith's book *The Wealth of Nations*
- The influence of Japanese management practices

Multiple Choice	*TB 01-61 Which of the following developments related to the...*

62. award: **0.25 points**

TB 01-62 Which of the following is not properly matched?

Which of the following is not properly matched?

- → Mathematical model for inventory management - Elton Mayo.
- Division of labour - Adam Smith
- Scientific Management - F. W. Taylor
- Motion study - Frank and Lillian Gilbreth
- Moving assembly line - Henry Ford

Multiple Choice	*TB 01-62 Which of the following is not properly matched?*

63. award: **0.25 points**

TB 01-63 Which of the following is not a major trend influe...

Which of the following is not a major trend influencing the strategies of manufacturing organizations?

- globalization
- the Internet and e-commerce
- → introduction of mass production
- supply chain management
- technological advances

Multiple Choice	*TB 01-63 Which of the following is not a major trend influe...*

64. award: **0.25 points**

TB 02-01 The variety of models and options available to cus...
The variety of models and options available to customers is an example of key purchasing criteria that establishes the basis of competition.

→ ○ True
○ False

True / False	*TB 02-01 The variety of models and options available to cus...*

65. award: **0.25 points**

TB 02-02 A characteristic that was once an order winner may...
A characteristic that was once an order winner may become an order qualifier, and vice versa.

→ ○ True
○ False

True / False	*TB 02-02 A characteristic that was once an order winner may...*

66. award: **0.25 points**

TB 02-03 Order qualifiers are those characteristics of an o...
Order qualifiers are those characteristics of an organization's goods or services that cause them to be perceived as better than the competition.

○ True
→ ○ False

True / False	*TB 02-03 Order qualifiers are those characteristics of an o...*

67. award: **0.25 points**

TB 02-04 The purchasing criteria of quality and timeliness ...
The purchasing criteria of quality and timeliness of delivery are order winners for all companies.

○ True
→ ○ False

True / False	*TB 02-04 The purchasing criteria of quality and timeliness ...*

68. award: **0.25 points**

TB 02-05 It is important that an organization have a clear ...
It is important that an organization have a clear and simple mission/vision/values statement.

→ ○ True
○ False

True / False	*TB 02-05 It is important that an organization have a clear ...*

69. award: **0.25 points**

TB 02-06 A mission statement should provide a guide for the...
A mission statement should provide a guide for the formulation of strategies for the organization.

→ ○ True
○ False

True / False	*TB 02-06 A mission statement should provide a guide for the...*

70. award: **0.25 points**

TB 02-07 If you think of goals as destinations, then tactic...
If you think of goals as destinations, then tactics are the roadmaps for reaching the destinations.

○ True
→ ○ False

True / False	*TB 02-07 If you think of goals as destinations, then tactic...*

71. award: **0.25 points**

TB 02-08 Strategic planning includes both determining long-...
Strategic planning includes both determining long-term plans and implementing them through allocation of resources and action plans.

→ ○ True
○ False

True / False	*TB 02-08 Strategic planning includes both determining long-...*

72. award: **0.25 points**

TB 02-09 Organizational strategy must be determined without...
Organizational strategy must be determined without regard to the realities of functional area strengths and weaknesses.

○ True
→ ○ False

True / False	*TB 02-09 Organizational strategy must be determined without...*

73. award: **0.25 points**

TB 02-10 Tactics are short-term projects to accomplish a sp...
Tactics are short-term projects to accomplish a specific objective, assigned to an individual, with a deadline and the resources needed identified.

○ True
→ ○ False

True / False	*TB 02-10 Tactics are short-term projects to accomplish a sp...*

74. award: **0.25 points**

TB 02-11 The hierarchy of planning and decision-making is: ...
The hierarchy of planning and decision-making is: mission/vision, goals, strategies, tactics, and action plans.

→ ○ True
○ False

True / False	*TB 02-11 The hierarchy of planning and decision-making is: ...*

75. award: **0.25 points**

TB 02-12 The creation of operations strategy occurs at both...
The creation of operations strategy occurs at both the company and the functional level.

→ ○ True
○ False

True / False	*TB 02-12 The creation of operations strategy occurs at both...*

76. award: **0.25 points**

TB 02-13 Formulating an operations strategy requires focusi...
Formulating an operations strategy requires focusing solely on the operations function, leaving the concerns of other functions and the status of external markets to broader organizational strategic planning.

○ True
→ ○ False

True / False	*TB 02-13 Formulating an operations strategy requires focusi...*

77. award: **0.25 points**

TB 02-14 In large manufacturing organizations, the operatio...
In large manufacturing organizations, the operations function tends to adopt a passive role in strategic planning, relying on the functional areas of marketing and finance to establish the strategic direction of the organization.

○ True
→ ○ False

True / False	*TB 02-14 In large manufacturing organizations, the operatio...*

78. award: **0.25 points**

TB 02-15 Vertical integration refers to the ownership of a ...
Vertical integration refers to the ownership of a major part or the whole of the supply chain.

→ ○ True
○ False

True / False	*TB 02-15 Vertical integration refers to the ownership of a ...*

79. award: **0.25 points**

TB 02-16 Matching a competitor on quality or price is usual...
Matching a competitor on quality or price is usually sufficient to gain market share.

- True
- → False

True / False	*TB 02-16 Matching a competitor on quality or price is usual...*

80. award: **0.25 points**

TB 02-17 Time-based competition focuses on reducing the tim...
Time-based competition focuses on reducing the time required to accomplish certain activities, such as new product development or delivery to the customer.

- → True
- False

True / False	*TB 02-17 Time-based competition focuses on reducing the tim...*

81. award: **0.25 points**

TB 02-18 The challenge of developing an operations strategy...
The challenge of developing an operations strategy decreases as the variety of products and the rate of new product introduction increase.

- True
- → False

True / False	*TB 02-18 The challenge of developing an operations strategy...*

82. award: **0.25 points**

TB 02-19 An outsourcing strategy involves selling off porti...
An outsourcing strategy involves selling off portions of an organization's traditional operations as a source of financing diversification into new areas of business.

- True
- → False

True / False	*TB 02-19 An outsourcing strategy involves selling off porti...*

83. award: **0.25 points**

TB 02-20 Productivity is defined as the ratio of output to ...
Productivity is defined as the ratio of output to input.

- → True
- False

True / False	*TB 02-20 Productivity is defined as the ratio of output to ...*

84. award: **0.25 points**

TB 02-21 Productivity is defined as the ratio of input to o...
Productivity is defined as the ratio of input to output.

- True
- → False

True / False	*TB 02-21 Productivity is defined as the ratio of input to o...*

85. award: **0.25 points**

TB 02-22 Labour productivity is one example of a multi-fact...
Labour productivity is one example of a multi-factor productivity measurement.

- True
- → False

True / False	*TB 02-22 Labour productivity is one example of a multi-fact...*

86. award: **0.25 points**

TB 02-23 Tracking productivity measures over time enables m...
Tracking productivity measures over time enables managers to judge organizational performance and to decide where improvements are needed.

- → True
- False

True / False	*TB 02-23 Tracking productivity measures over time enables m...*

87. award: **0.25 points**

TB 02-24 Productivity is directly related to competitivenes...
Productivity is directly related to competitiveness.

- → True
- False

True / False	*TB 02-24 Productivity is directly related to competitivenes...*

88. award: **0.25 points**

TB 02-25 Even though labour cost as a proportion of total c...
Even though labour cost as a proportion of total cost has been decreasing in manufacturing companies, labour productivity is still the main measure being used to gauge the performance of individuals and plants.

- → True
- False

True / False	*TB 02-25 Even though labour cost as a proportion of total c...*

89. award: **0.25 points**

TB 02-26 Productivity is only indirectly related to competi...
Productivity is only indirectly related to competitiveness.

- True
- → False

True / False	*TB 02-26 Productivity is only indirectly related to competi...*

90. award: **0.25 points**

TB 02-27 Service productivity is easier to measure than man...
Service productivity is easier to measure than manufacturing productivity because it is more labour intensive.

- True
- → False

True / False	*TB 02-27 Service productivity is easier to measure than man...*

91. award: **0.25 points**

TB 02-28 Workers are the main determinant of productivity.
Workers are the main determinant of productivity.

- True
- → False

True / False	*TB 02-28 Workers are the main determinant of productivity.*

92. award: **0.25 points**

TB 02-29 Computer automation will always result in increase...
Computer automation will always result in increased productivity.

- True
- → False

True / False	*TB 02-29 Computer automation will always result in increase...*

93. award: **0.25 points**

TB 02-30 Variability of the output of services makes it mor...
Variability of the output of services makes it more difficult to measure service productivity.

- → True
- False

True / False	*TB 02-30 Variability of the output of services makes it mor...*

94. award: **0.25 points**

TB 02-31 Product variety and convenience of location are ex...

Product variety and convenience of location are examples of:

- generic operations strategies
- operations infrastructure
- process types
- dimensions of flexibility
- → key purchasing criteria

Multiple Choice	*TB 02-31 Product variety and convenience of location are ex...*

95. award: **0.25 points**

TB 02-32 Which of the following is not one of the competiti...

Which of the following is not one of the competitive priorities organizations emphasize as the basis of competing with one-another?

- cost
- quality
- → product duplication
- variety
- delivery

Multiple Choice	*TB 02-32 Which of the following is not one of the competiti...*

96. award: **0.25 points**

TB 02-33 Which of the following is not a key purchasing cri...

Which of the following is not a key purchasing criterion?

- price
- variety
- location
- customer service
- → vendor relations

Multiple Choice	*TB 02-33 Which of the following is not a key purchasing cri...*

97. award: **0.25 points**

TB 02-34 Characteristics that customers perceive as minimum...

Characteristics that customers perceive as minimum standards of acceptability are called:

- Order winners
- → Order qualifiers
- Core competencies
- Distinctive competencies
- Minimum attributes

Multiple Choice	*TB 02-34 Characteristics that customers perceive as minimum...*

98. award: **0.25 points**

TB 02-35 Strategies have a _____ impact on the general...
Strategies have a _____ impact on the general direction and basic character of a company:

→ ○ long-term
○ medium-term
○ short-term
○ insignificant
○ tactical

Multiple Choice	*TB 02-35 Strategies have a _____ impact on the general...*

99. award: **0.25 points**

TB 02-36 The shared beliefs of an organizations' stakeholde...
The shared beliefs of an organizations' stakeholders are its:

○ policies
○ vision
○ strategy
○ mission
→ ○ values

Multiple Choice	*TB 02-36 The shared beliefs of an organizations' stakeholde...*

100. award: **0.25 points**

TB 02-37 Of the following, which aspect of strategic planni...
Of the following, which aspect of strategic planning involves medium or short-term projects to accomplish specific objectives?

○ organizational strategies
○ functional strategies
→ ○ action plans
○ forecasts
○ mission/vision statements

Multiple Choice	*TB 02-37 Of the following, which aspect of strategic planni...*

101. award: **0.25 points**

TB 02-38 Which of the following are major decision-making c...
Which of the following are major decision-making categories for operations policies and action plans?

I. Facility
II. Capacity
III. Process types
IV. Human Resources

○ I and II only
○ I, II, and III only
○ III and IV only
○ II, III, and IV only
→ ○ I, II, III, and IV

Multiple Choice	*TB 02-38 Which of the following are major decision-making c...*

102. award: **0.25 points**

TB 02-39 Which of the following are steps for formulating a...
Which of the following are steps for formulating an operations strategy?

I. Link the organizational goals to the operations strategy
II. Define the mission and values of the organization.
III. Conduct an audit to determine the strengths/weaknesses of the current operations strategy
IV. Assess the degree of focus at each plant.

- I and II only
- I, II, and III only
- → I, III, and IV only
- II, III, and IV only
- I, II, III, and IV

Multiple Choice	*TB 02-39 Which of the following are steps for formulating a...*

103. award: **0.25 points**

TB 02-40 The generic operations strategy that emphasizes ca...
The generic operations strategy that emphasizes capital-intensive methods to achieve higher labour productivity and lower unit costs is referred to as _____.

- Low labour cost strategy
- → Scale-based strategy
- Focused factories strategy
- Outsourcing
- Flexible factories strategy

Multiple Choice	*TB 02-40 The generic operations strategy that emphasizes ca...*

104. award: **0.25 points**

TB 02-41 The practice of buying a part of a good/service or...
The practice of buying a part of a good/service or a segment of production/service processes from another company is a tactic associated with what generic operations strategy?

- Low labour cost strategy
- Scale-based strategy
- Focused factories strategy
- → Outsourcing
- Flexible factories strategy

Multiple Choice	*TB 02-41 The practice of buying a part of a good/service or...*

105. award: **0.25 points**

TB 02-42 Time-Based strategies do not include which of the ...
Time-Based strategies do not include which of the following:

- focus on the time to deliver a product
- → focus on maintaining quality
- focus on planning time
- focus on production design time
- focus on changeover time

Multiple Choice	*TB 02-42 Time-Based strategies do not include which of the ...*

106. award: **0.25 points**

TB 02-43 Productivity is expressed as:
Productivity is expressed as:

- output plus input
- output minus input
- output times input
- → output divided by input
- input divided by output

Multiple Choice	*TB 02-43 Productivity is expressed as:*

107. award: **0.25 points**

TB 02-44 A measure of productivity which reflects a combina...
A measure of productivity which reflects a combination of some or all of the resources used to obtain a certain output is:

- labour productivity
- machine productivity
- → multi-factor productivity
- materials productivity
- overhead productivity

Multiple Choice	*TB 02-44 A measure of productivity which reflects a combina...*

108. award: **0.25 points**

TB 02-45 Canvalves Company produces cast bronze valves on a...
Canvalves Company produces cast bronze valves on an assembly line. It currently produces 800 valves each 8-hour shift. If the production is increased to 1,200 valves each shift, the productivity increases by:

- → 50%
- 33%
- 25%
- 67%
- none of the choices are correct

Multiple Choice	*TB 02-45 Canvalves Company produces cast bronze valves on a...*

109. award: **0.25 points**

TB 02-46 In an assembly operation at a furniture factory, s...
In an assembly operation at a furniture factory, six employees assembled an average of 450 standard dining chairs per 5-day week. What is the labour productivity of this operation?

- 90 chairs/worker/day
- 20 chairs/worker/day
- → 15 chairs/worker/day
- 75 chairs/worker/day
- none of the choices are correct

Multiple Choice	*TB 02-46 In an assembly operation at a furniture factory, s...*

110. award: **0.25 points**

TB 02-47 The weekly output of a fabrication process is show...

The weekly output of a fabrication process is shown below together with data for labour and material inputs. Standard selling price is $125 per unit. Overhead is charged weekly at the rate of $1,500 plus .5 times direct labour cost. Assume a 40-hour week and an hourly wage of $16. Material cost is $10 per linear foot. What is the average multifactor productivity?

Week	Output	# Workers	Material (feet)
1	392	5	2720
2	408	6	2790

- 1.463
- → 1.456
- 1.431
- 1.422
- none of the choices are correct

Multiple Choice	*TB 02-47 The weekly output of a fabrication process is show...*

111. award: **0.25 points**

TB 02-48 Which of the following are not true of productivit...

Which of the following are not true of productivity measures?

- → Labour productivity is mainly used for manufacturing and not used for services.
- Productivity measures can track performance over time.
- Labour productivity is used in labour wage negotiations.
- Productivity measures can be used to measure the performance of an organization or an entire country.
- All of the choices are true.

Multiple Choice	*TB 02-48 Which of the following are not true of productivit...*

112. award: **0.25 points**

TB 02-49 Which of the following is not a factor that affect...

Which of the following is not a factor that affects productivity?

- use of computers in an office
- design of the workspace
- use of Internet and e-mail
- standardizing work process
- → analysis of competitors

Multiple Choice	*TB 02-49 Which of the following is not a factor that affect...*

113. award: **0.25 points**

TB 02-50 Which of these factors affects productivity?

Which of these factors affects productivity?

- methods and management
- capital equipment
- technology
- labour
- → all of the choices are true

Multiple Choice	*TB 02-50 Which of these factors affects productivity?*

114. award: **0.25 points**

TB 02-51 Which of the following is not a general factor tha...

Which of the following is not a general factor that affects productivity?

- methods and management
- capital equipment
- → competitors
- labour
- technology

Multiple Choice	*TB 02-51 Which of the following is not a general factor tha...*

115. award: **0.25 points**

TB 02-52 A company has introduced a process improvement tha...

A company has introduced a process improvement that reduces processing time for each unit, so that output is increased by 25% with less material, but one additional worker required. Under the old process, five workers could produce 60 units per hour. Labour costs are $12/hour, and material input was previously $16/unit. For the new process, material is now $10/unit. Overhead is charged at 1.6 times direct labour cost. Finished units sell for $31 each. What increase in productivity is associated with the process improvement?

$$\text{Before}: \frac{60(31)}{5(12)+60(16)+1.6(5)(12)} = \frac{1{,}860/\text{hr}}{1{,}116/\text{hr}} = 1.667$$

$$\text{After}: \frac{60(1.25)(31)}{6(12)+75(10)+1.6(6)(12)} = \frac{2{,}325/\text{hr}}{937.2/\text{hr}} = 2.481$$

$$\text{Productivity increase} = \frac{(2.481-1.667)\times 100}{1.667} = 48.83\%$$

Short Answer	*TB 02-52 A company has introduced a process improvement tha...*

116. award: **0.25 points**

TB 02-53 The manager of a carpet store is trying to determi...

The manager of a carpet store is trying to determine optimal installation crew size. He has tried various crew sizes with the results shown below. Compute the average labour productivity for each crew size. Which crew size do you recommend?

Crew Size	Yards Installed
2	706
4	1308
3	1017
3	1002
4	1288
2	692

Crew Size	**Yards Installed**	Labour Productivity
2	706	353 yards/worker
4	1,308	327 yards/worker
3	1,017	339 yards/worker
3	1,002	334 yards/worker
4	1,288	322 yards/worker
2	692	346 yards/worker

Crew Size	Avg. Labour Productivity
2	(353 + 346)/2 = 349.5 yards/worker
3	(339 + 334)/2 = 336.5 yards/worker
4	(327 + 322)/2 = 324.5 yards/worker

Recommend optimal crew size = 2

Short Answer *TB 02-53 The manager of a carpet store is trying to determi...*

117. award: **0.25 points**

TB 02-54 The weekly output of a production process is shown...

The weekly output of a production process is shown below, together with data for labour and material inputs. The standard inventory value of the output is $125 per unit. Overhead is charged weekly at the rate of $1500 plus .5 times direct labour cost. Assume a 40-hour week and an hourly wage of $16. Material cost is $10 per running foot. Compute the average multifactor productivity for this process.

Week	Output	# Workers	Material (ft.)
1	412	6	2840
2	364	5	2550
3	392	5	2720
4	408	6	2790

$$\text{Wk 1}: \frac{412(125)}{6(40)(16)+2{,}840(10)+.5(6)(40)(16)+1{,}500} = \frac{51{,}500}{35{,}660} = 1.444$$

$$\text{Wk 2}: \frac{365(125)}{5(40)(16)+2{,}550(10)+.5(5)(40)(16)+1{,}500} = \frac{45{,}500}{31{,}800} = 1.431$$

$$\text{Wk 3}: \frac{392(125)}{5(40)(16)+2{,}720(10)+.5(5)(40)(16)+1{,}500} = \frac{49{,}000}{33{,}500} = 1.463$$

$$\text{Wk 4}: \frac{408(125)}{6(40)(16)+2{,}790(10)+.5(6)(40)(16)+1{,}500} = \frac{51{,}000}{35{,}160} = 1.451$$

Avg. = (1.444 + 1.431 + 1.463 + 1.451)/4 = 5.789/4 = 1.447

Short Answer	*TB 02-54 The weekly output of a production process is shown...*

118. award: **0.25 points**

TB 03-01 Forecasts help managers plan both the design of th...

Forecasts help managers plan both the design of the system itself and the use of the system.

→ ○ True
○ False

True / False	*TB 03-01 Forecasts help managers plan both the design of th...*

119. award: **0.25 points**

TB 03-02 Forecasting techniques generally assume that the s...

Forecasting techniques generally assume that the same causal system that existed in the past will continue to exist in the future.

→ ○ True
○ False

True / False	*TB 03-02 Forecasting techniques generally assume that the s...*

120. award: **0.25 points**

TB 03-03 Forecasts are rarely perfect.

Forecasts are rarely perfect.

→ ○ True
○ False

True / False	*TB 03-03 Forecasts are rarely perfect.*

121. award: **0.25 points**

TB 03-04 Once accepted by managers, forecasts should rarely...
Once accepted by managers, forecasts should rarely be overridden.

- True
- → False

True / False	*TB 03-04 Once accepted by managers, forecasts should rarely...*

122. award: **0.25 points**

TB 03-05 Forecasts for groups of items tend to be less accu...
Forecasts for groups of items tend to be less accurate than forecasts for individual items because forecasts for individual items are not subject to as many influencing factors.

- True
- → False

True / False	*TB 03-05 Forecasts for groups of items tend to be less accu...*

123. award: **0.25 points**

TB 03-06 Organizations that are capable of responding quick...
Organizations that are capable of responding quickly to changing requirements can use a shorter forecast horizon and therefore benefit from more accurate forecasts.

- → True
- False

True / False	*TB 03-06 Organizations that are capable of responding quick...*

124. award: **0.25 points**

TB 03-07 Forecast accuracy tends to increase as the time ho...
Forecast accuracy tends to increase as the time horizon increases.

- True
- → False

True / False	*TB 03-07 Forecast accuracy tends to increase as the time ho...*

125. award: **0.25 points**

TB 03-08 The purpose of the forecast should be established ...
The purpose of the forecast should be established first so that the level of detail, amount of resources, and accuracy level can be indicated.

- → True
- False

True / False	*TB 03-08 The purpose of the forecast should be established ...*

126. award: **0.25 points**

TB 03-09 Time series techniques involve identification of e...
Time series techniques involve identification of explanatory variables that can be used to predict future demand.

- True
- → False

True / False	*TB 03-09 Time series techniques involve identification of e...*

127. award: **0.25 points**

TB 03-10 A consumer survey is an easy and sure way to obtai...
A consumer survey is an easy and sure way to obtain direct input from existing customers.

- True
- → False

True / False	*TB 03-10 A consumer survey is an easy and sure way to obtai...*

128. award: **0.25 points**

TB 03-11 The Delphi approach involves the use of a series o...
The Delphi approach involves the use of a series of questionnaires to achieve a consensus forecast.

- → True
- False

True / False	*TB 03-11 The Delphi approach involves the use of a series o...*

129. award: **0.25 points**

TB 03-12 Forecasts based on time series (historical) data a...
Forecasts based on time series (historical) data are referred to as associative forecasts.

- True
- → False

True / False	*TB 03-12 Forecasts based on time series (historical) data a...*

130. award: **0.25 points**

TB 03-13 As a forecasting technique, the Delphi technique i...
As a forecasting technique, the Delphi technique is useful for technological forecasting.

- → True
- False

True / False	*TB 03-13 As a forecasting technique, the Delphi technique i...*

131. award: **0.25 points**

TB 03-14 One weakness of the Delphi method is that there is...
One weakness of the Delphi method is that there is a high risk that one person's opinion will prevail.

- True
- → False

True / False	*TB 03-14 One weakness of the Delphi method is that there is...*

132. award: **0.25 points**

TB 03-15 Forecasting techniques that are based on time seri...
Forecasting techniques that are based on time series data assume that future values of the series will duplicate past values.

- True
- → False

True / False	*TB 03-15 Forecasting techniques that are based on time seri...*

133. award: **0.25 points**

TB 03-16 The primary difference between irregular and rando...
The primary difference between irregular and random variations is the ability to attribute variations to a specific cause.

- → True
- False

True / False	*TB 03-16 The primary difference between irregular and rando...*

134. award: **0.25 points**

TB 03-17 Increasing the number of data points included in a...
Increasing the number of data points included in a moving average will result in a forecast that is smoother but less responsive to changes.

- → True
- False

True / False	*TB 03-17 Increasing the number of data points included in a...*

135. award: **0.25 points**

TB 03-18 The naive approach to forecasting requires a linea...
The naive approach to forecasting requires a linear trend line.

- True
- → False

True / False	*TB 03-18 The naive approach to forecasting requires a linea...*

136. award: **0.25 points**

TB 03-19 The naive forecast is limited in its application t...
The naive forecast is limited in its application to series that reflect no trend or seasonality.

- True
- → False

True / False	*TB 03-19 The naive forecast is limited in its application t...*

137. award: **0.25 points**

TB 03-20 The naive forecast can serve as a standard of comp...
The naive forecast can serve as a standard of comparison against which to judge the cost and accuracy of other techniques.

- → True
- False

True / False	*TB 03-20 The naive forecast can serve as a standard of comp...*

138. award: **0.25 points**

TB 03-21 A moving average forecast tends to be more respons...
A moving average forecast tends to be more responsive to changes in the data series when more data points are included in the average.

- True
- → False

True / False	*TB 03-21 A moving average forecast tends to be more respons...*

139. award: **0.25 points**

TB 03-22 In order to update a moving average forecast, the ...
In order to update a moving average forecast, the values of each data point in the average must be known.

- → True
- False

True / False	*TB 03-22 In order to update a moving average forecast, the ...*

140. award: **0.25 points**

TB 03-23 A simple moving average assigns equal weight to ea...
A simple moving average assigns equal weight to each data point that is represented by the average.

- → True
- False

True / False	*TB 03-23 A simple moving average assigns equal weight to ea...*

141. award: **0.25 points**

TB 03-24 An advantage of a weighted moving average is that ...
An advantage of a weighted moving average is that more recent experience is given more weight than less recent experience.

→ ○ True
○ False

True / False	*TB 03-24 An advantage of a weighted moving average is that ...*

142. award: **0.25 points**

TB 03-25 Exponential smoothing is a form of weighted averag...
Exponential smoothing is a form of weighted averaging.

→ ○ True
○ False

True / False	*TB 03-25 Exponential smoothing is a form of weighted averag...*

143. award: **0.25 points**

TB 03-26 A smoothing constant of .1 will cause an exponenti...
A smoothing constant of .1 will cause an exponential smoothing forecast to react more quickly to a sudden change than a value of .3 will.

○ True
→ ○ False

True / False	*TB 03-26 A smoothing constant of .1 will cause an exponenti...*

144. award: **0.25 points**

TB 03-27 In exponential smoothing, an alpha of .30 will cau...
In exponential smoothing, an alpha of .30 will cause a forecast to react more quickly to a large error than will an alpha of .20.

→ ○ True
○ False

True / False	*TB 03-27 In exponential smoothing, an alpha of .30 will cau...*

145. award: **0.25 points**

TB 03-28 The T in the model TAF = S T represents the time...
The *T* in the model TAF = *S* + *T* represents the time dimension.

○ True
→ ○ False

True / False	*TB 03-28 The T in the model TAF = S T represents the time...*

146. award: **0.25 points**

TB 03-29 Trend adjusted exponential smoothing requires sele...

Trend adjusted exponential smoothing requires selection of two smoothing constants.

→ True

False

True / False	*TB 03-29 Trend adjusted exponential smoothing requires sele...*

147. award: **0.25 points**

TB 03-30 An advantage of trend adjusted exponential smooth...

An advantage of "trend adjusted exponential smoothing" over the "linear trend equation" is its ability to adjust over time to changes in the trend.

→ True

False

True / False	*TB 03-30 An advantage of trend adjusted exponential smooth...*

148. award: **0.25 points**

TB 03-31 A seasonal relative (or seasonal indexes) is expre...

A seasonal relative (or seasonal indexes) is expressed as a percentage of the average or trend in a time series.

→ True

False

True / False	*TB 03-31 A seasonal relative (or seasonal indexes) is expre...*

149. award: **0.25 points**

TB 03-32 In order to compute seasonal relatives, the trend ...

In order to compute seasonal relatives, the trend of past data must be computed or known.

→ True

False

True / False	*TB 03-32 In order to compute seasonal relatives, the trend ...*

150. award: **0.25 points**

TB 03-33 Removing the seasonal component from a data series...

Removing the seasonal component from a data series (deseasonalizing) can be accomplished by dividing each data point by its appropriate seasonal relative.

→ True

False

True / False	*TB 03-33 Removing the seasonal component from a data series...*

151. award: **0.25 points**

TB 03-34 Cycles are more difficult to project in forecasts ...
Cycles are more difficult to project in forecasts than are seasonal variations.

→ ○ True
○ False

True / False	*TB 03-34 Cycles are more difficult to project in forecasts ...*

152. award: **0.25 points**

TB 03-35 Correlation measures the strength and direction of...
Correlation measures the strength and direction of a relationship between variables.

→ ○ True
○ False

True / False	*TB 03-35 Correlation measures the strength and direction of...*

153. award: **0.25 points**

TB 03-36 Multiple regression procedures permit us to extend...
Multiple regression procedures permit us to extend associative models to relationships that involve more than one predictor variable.

→ ○ True
○ False

True / False	*TB 03-36 Multiple regression procedures permit us to extend...*

154. award: **0.25 points**

TB 03-37 The forecast error is the difference between the a...
The forecast error is the difference between the actual value and the forecast value for a given period.

→ ○ True
○ False

True / False	*TB 03-37 The forecast error is the difference between the a...*

155. award: **0.25 points**

TB 03-38 Long-term forecasts need little monitoring of fore...
Long-term forecasts need little monitoring of forecast errors.

○ True
→ ○ False

True / False	*TB 03-38 Long-term forecasts need little monitoring of fore...*

156. award: **0.25 points**

TB 03-39 MAD is equal to the square root of MSE.
MAD is equal to the square root of MSE.

- ○ True
- → ○ False

True / False	*TB 03-39 MAD is equal to the square root of MSE.*

157. award: **0.25 points**

TB 03-40 The MSE is the best measure to use in a control ch...
The MSE is the best measure to use in a control chart to monitor if forecast error is randomly distributed around a mean value of 0.

- ○ True
- → ○ False

True / False	*TB 03-40 The MSE is the best measure to use in a control ch...*

158. award: **0.25 points**

TB 03-41 The square root of MSE is used to estimate the sam...
The square root of MSE is used to estimate the sample standard deviation of forecast errors.

- → ○ True
- ○ False

True / False	*TB 03-41 The square root of MSE is used to estimate the sam...*

159. award: **0.25 points**

TB 03-42 A control chart involves setting control limits to...
A control chart involves setting control limits to monitor cumulative forecast error.

- ○ True
- → ○ False

True / False	*TB 03-42 A control chart involves setting control limits to...*

160. award: **0.25 points**

TB 03-43 The use of a control chart assumes that errors are...
The use of a control chart assumes that errors are normally distributed about a mean of zero.

- → ○ True
- ○ False

True / False	*TB 03-43 The use of a control chart assumes that errors are...*

161. award: **0.25 points**

TB 03-44 When error values fall outside the limits of a con...
When error values fall outside the limits of a control chart, this signals a need for corrective action

→ ○ True
○ False

True / False	*TB 03-44 When error values fall outside the limits of a con...*

162. award: **0.25 points**

TB 03-45 Using control charts to monitor forecast error are...
Using control charts to monitor forecast error are best suited for forecasting applications involving a single forecast rather than applications involving a series of forecasts (e.g. monthly sales).

○ True
→ ○ False

True / False	*TB 03-45 Using control charts to monitor forecast error are...*

163. award: **0.25 points**

TB 03-46 A random pattern of errors within the limits of a ...
A random pattern of errors within the limits of a control chart signals a need for corrective action.

○ True
→ ○ False

True / False	*TB 03-46 A random pattern of errors within the limits of a ...*

164. award: **0.25 points**

TB 03-47 When all the forecast errors plotted on a control ...
When all the forecast errors plotted on a control chart are either all positive, or all negative, this shows that the forecasting technique is performing adequately.

○ True
→ ○ False

True / False	*TB 03-47 When all the forecast errors plotted on a control ...*

165. award: **0.25 points**

TB 03-48 The best forecast is always the one that is the mo...
The best forecast is always the one that is the most accurate.

○ True
→ ○ False

True / False	*TB 03-48 The best forecast is always the one that is the mo...*

166. award: **0.25 points**

TB 03-49 Moving average and exponential smoothing forecasti...
Moving average and exponential smoothing forecasting techniques are used for long range forecasts.

- True
- → False

True / False	*TB 03-49 Moving average and exponential smoothing forecasti...*

167. award: **0.25 points**

TB 03-50 A proactive approach to forecasting views forecast...
A proactive approach to forecasting views forecasts as probable descriptions of future demand, assuming actions can be taken to meet that demand.

- True
- → False

True / False	*TB 03-50 A proactive approach to forecasting views forecast...*

168. award: **0.25 points**

TB 03-51 A proactive approach to forecasts might involve ad...
A proactive approach to forecasts might involve advertising or other attempts to influence the demand level.

- → True
- False

True / False	*TB 03-51 A proactive approach to forecasts might involve ad...*

169. award: **0.25 points**

TB 03-52 Forecasts can help a manager to do all of the foll...
Forecasts can help a manager to do all of the following EXCEPT:

- reduce uncertainty in planning
- design the system
- plan the medium-term use of the system
- schedule the short-term use of the system
- → predict the future precisely

Multiple Choice	*TB 03-52 Forecasts can help a manager to do all of the foll...*

170. award: **0.25 points**

TB 03-53 In operations, forecasts are the basis for all of ...
In operations, forecasts are the basis for all of the following EXCEPT:

- capacity planning
- location planning
- overall inventory level planning
- scheduling of production
- → forecasts are the basis for all of the choices

Multiple Choice	*TB 03-53 In operations, forecasts are the basis for all of ...*

171. award: **0.25 points**

TB 03-54 All of the following are true about forecasts EXCE...
All of the following are true about forecasts EXCEPT:

- become less accurate with longer time horizons
- are less accurate for individual items than for groups of items
- → are always perfect
- are usually the responsibility of operating managers to prepare
- all of the choices are true

Multiple Choice	*TB 03-54 All of the following are true about forecasts EXCE...*

172. award: **0.25 points**

TB 03-55 Which would not generally be considered as a featu...
Which would not generally be considered as a feature common to all forecasts?

- An assumption of a stable underlying causal system.
- Actual results will differ somewhat from predicted values.
- → Historical data is available on which to base the forecast.
- Forecasts for groups of items tend to be more accurate than forecasts for individual items.
- Accuracy decreases as the time horizon increases.

Multiple Choice	*TB 03-55 Which would not generally be considered as a featu...*

173. award: **0.25 points**

TB 03-56 Which of the following is not a step in the foreca...
Which of the following is not a step in the forecasting process?

- determine the purpose
- → eliminate any assumptions
- establish a time horizon
- select a technique
- monitor the forecast

Multiple Choice	*TB 03-56 Which of the following is not a step in the foreca...*

174. award: **0.25 points**

TB 03-57 Determining the purpose of the forecast is an impo...
Determining the purpose of the forecast is an important first step in the forecasting process because it indicates:

I. the level of detail required in the forecast
II. the amount of resources that can be justified
III. the level of accuracy required

- I and II only
- I and III only
- II and III only
- → I, II, and III only
- none of the choices are true

Multiple Choice	*TB 03-57 Determining the purpose of the forecast is an impo...*

175. award: **0.25 points**

TB 03-58 The two general approaches to forecasting are:
The two general approaches to forecasting are:

- mathematical and statistical
- qualitative and quantitative
- → judgmental and quantitative
- historical and associative
- judgmental and associative

Multiple Choice	*TB 03-58 The two general approaches to forecasting are:*

176. award: **0.25 points**

TB 03-59 Which of the following is not necessarily an eleme...
Which of the following is not necessarily an element of a good forecast?

- degree of accuracy stated
- time horizon long enough to be useful
- expressed in meaningful units
- → low cost to complete
- technique is simple to understand and use

Multiple Choice	*TB 03-59 Which of the following is not necessarily an eleme...*

177. award: **0.25 points**

TB 03-60 Which of the following is not a requirement of a p...
Which of the following is not a requirement of a properly prepared forecast?

- timely
- accurate
- reliable
- simple to understand and use
- → inexpensive

Multiple Choice	*TB 03-60 Which of the following is not a requirement of a p...*

178. award: **0.25 points**

TB 03-61 Which of the following is not a type of judgmental...
Which of the following is not a type of judgmental forecasting?

- executive opinions
- sales force opinions
- consumer surveys
- expert opinions
- → time series analysis

Multiple Choice	*TB 03-61 Which of the following is not a type of judgmental...*

179. award: **0.25 points**

TB 03-62 Which of the following steps is considered the las...

Which of the following steps is considered the last step in the forecasting process?

- gather and analyze relevant historical data
- determine the purpose of the forecast
- → monitor the forecast
- prepare the forecast
- establish a time horizon

Multiple Choice	*TB 03-62 Which of the following steps is considered the las...*

180. award: **0.25 points**

TB 03-63 Which of the following would be an advantage of us...

Which of the following would be an advantage of using opinions of a sales force to develop a demand forecast?

- The sales staff is least affected by changing customer needs.
- The sales force can easily distinguish between customer desires and probable actions.
- → The sales staff is often aware of customers' future plans.
- Salespeople are least likely to be influenced by recent events.
- Salespeople are least likely to be biased by sales quotas.

Multiple Choice	*TB 03-63 Which of the following would be an advantage of us...*

181. award: **0.25 points**

TB 03-64 Which phrase most closely describes the Delphi tec...

Which phrase most closely describes the Delphi technique?

- associative forecast
- consumer survey
- → series of questionnaires
- double smoothing
- historical data

Multiple Choice	*TB 03-64 Which phrase most closely describes the Delphi tec...*

182. award: **0.25 points**

TB 03-65 A company is trying to anticipate when video telep...

A company is trying to anticipate when video telephones might be available in at least half of their client's businesses. Which method are they most likely to use?

- → the Delphi method
- consumer surveys
- regression models
- naive method
- trend models

Multiple Choice	*TB 03-65 A company is trying to anticipate when video telep...*

183. award: **0.25 points**

TB 03-66 The forecasting method which uses anonymous questi...
The forecasting method which uses anonymous questionnaires to achieve a consensus forecast is:

- sales force opinions
- consumer surveys
- → the Delphi method
- time series analysis
- executive opinions

Multiple Choice	*TB 03-66 The forecasting method which uses anonymous questi...*

184. award: **0.25 points**

TB 03-67 One reason for using the Delphi method in forecast...
One reason for using the Delphi method in forecasting is:

- → responses are anonymous
- to achieve a high degree of accuracy
- to maintain accountability and responsibility
- to be able to replicate results
- all of the choices are reasons

Multiple Choice	*TB 03-67 One reason for using the Delphi method in forecast...*

185. award: **0.25 points**

TB 03-68 Time series data may exhibit all but which of the ...
Time series data may exhibit all but which of the following behaviours?

- trend
- seasonality
- cycles
- irregularities
- → all of the choices may be exhibited

Multiple Choice	*TB 03-68 Time series data may exhibit all but which of the ...*

186. award: **0.25 points**

TB 03-69 Persistent upward or downward movement in time ser...
Persistent upward or downward movement in time series data is called:

- seasonal variation
- cycles
- irregular variation
- → trend
- random variation

Multiple Choice	*TB 03-69 Persistent upward or downward movement in time ser...*

187. award: **0.25 points**

TB 03-70 The primary difference between seasonality and cyc...
The primary difference between seasonality and cycles is:

→ the duration of the repeating patterns
the magnitude of the variation
the ability to attribute the pattern to a cause
all of the choices are differences
none of the choices are differences

Multiple Choice	*TB 03-70 The primary difference between seasonality and cyc...*

188. award: **0.25 points**

TB 03-71 Time series techniques are useful for:I) distingui...
Time series techniques are useful for:

I) distinguishing between random and non-random variations
II) smoothing out fluctuations in data
III) providing accuracy in forecasts

I only
I and II only
→ II only
II and III only
I, II, and III

Multiple Choice	*TB 03-71 Time series techniques are useful for:I) distingui...*

189. award: **0.25 points**

TB 03-72 Disadvantages of naive forecasts include:I. time-c...
Disadvantages of naive forecasts include:

I. time-consuming
II. not very accurate
III. does not smooth random variations

I, II, and III
I and II
I and III
→ II and III
none of the choices are disadvantages

Multiple Choice	*TB 03-72 Disadvantages of naive forecasts include:I. time-c...*

190. award: **0.25 points**

TB 03-73 The naive forecast:
The naive forecast:

is quick and easy to prepare
is easy for users to understand
can serve as an accuracy standard for other techniques
→ all of the choices A, B, and C are true
none of the choices A, B, and C are true

Multiple Choice	*TB 03-73 The naive forecast:*

191. award: **0.25 points**

TB 03-74 Using the latest observation in a sequence of data...
Using the latest observation in a sequence of data to forecast the next period is:

- a moving average forecast
- → a naive forecast
- an exponentially smoothed forecast
- an associative forecast
- none of the choices are true

Multiple Choice	*TB 03-74 Using the latest observation in a sequence of data...*

192. award: **0.25 points**

TB 03-75 For the data given below, what would the naive for...
For the data given below, what would the naive forecast be for the next period?

Period	Demand
1	58
2	59
3	60
4	61

- 58
- 62
- 59.5
- → 61
- none of the choices are true

Multiple Choice	*TB 03-75 For the data given below, what would the naive for...*

193. award: **0.25 points**

TB 03-76 Given the following historical data, what is the s...
Given the following historical data, what is the simple three-period moving average forecast for period 6?

Period	Value	Period	Value
1	73	4	72
2	68	5	67
3	65		

- 67
- 115
- 69
- → 68
- 68.67

Multiple Choice	*TB 03-76 Given the following historical data, what is the s...*

194. award: **0.25 points**

TB 03-77 Given the following historical data and weights of...
Given the following historical data and weights of .5, .3, and .2, what is the weighted three-period moving average forecast for period 5?

Period	Value	Period	Value
1	138	3	148
2	142	4	144

- 144.20
- → 144.80
- 144.67
- 143.00
- 144.00

Multiple Choice *TB 03-77 Given the following historical data and weights of...*

195. award: **0.25 points**

TB 03-78 Moving average forecasting techniques:
Moving average forecasting techniques:

- immediately reflect changing patterns in the data.
- lead changes in the data.
- → smooth variations in the data.
- all of the choices are true.
- none of the choices are true.

Multiple Choice *TB 03-78 Moving average forecasting techniques:*

196. award: **0.25 points**

TB 03-79 Which is not a characteristic of simple moving ave...
Which is not a characteristic of simple moving averages applied to time series data?

- smoothes random variations in the data
- weights each historical value equally
- lags changes in the data
- → has minimal reliance on historical data
- smoothes real variations in the data

Multiple Choice *TB 03-79 Which is not a characteristic of simple moving ave...*

197. award: **0.25 points**

TB 03-80 In order to increase the responsiveness of a forec...
In order to increase the responsiveness of a forecast made using the moving average technique, the number of data points in the average should be:

- → decreased
- increased
- multiplied by a larger alpha
- multiplied by a smaller alpha
- none of the choices are true

Multiple Choice *TB 03-80 In order to increase the responsiveness of a forec...*

198. award: **0.25 points**

TB 03-81 As compared to a simple moving average, the weight...

As compared to a simple moving average, the weighted moving average is:

- easier to compute
- → more reflective of the recent changes
- smoother
- all of the choices are true
- none of the choices are true

Multiple Choice	*TB 03-81 As compared to a simple moving average, the weight...*

199. award: **0.25 points**

TB 03-82 A forecast based on the previous forecast plus a p...

A forecast based on the previous forecast plus a percentage of the forecast error is:

- a naive forecast
- a simple moving average forecast
- a centred moving average forecast
- → an exponentially smoothed forecast
- an associative forecast

Multiple Choice	*TB 03-82 A forecast based on the previous forecast plus a p...*

200. award: **0.25 points**

TB 03-83 Which is not a characteristic of exponential smoot...

Which is not a characteristic of exponential smoothing?

- smoothes random variations in the data
- → weights each historical value equally
- easily altered weighting scheme
- directly accounts for forecast error
- smoothes real variations in the data

Multiple Choice	*TB 03-83 Which is not a characteristic of exponential smoot...*

201. award: **0.25 points**

TB 03-84 Which of the following smoothing constants would m...

Which of the following smoothing constants would make an exponential smoothing forecast equivalent to a naive forecast?

- 0
- .01
- .1
- .5
- → 1.0

Multiple Choice	*TB 03-84 Which of the following smoothing constants would m...*

202. award: **0.25 points**

TB 03-85 Simple exponential smoothing is being used to fore...

Simple exponential smoothing is being used to forecast demand. The previous forecast of 66 turned out to be four units less than actual demand. The next forecast is 66.6, implying a smoothing constant, alpha, equal to:

- .01
- .10
- → .15
- .20
- .60

Multiple Choice	*TB 03-85 Simple exponential smoothing is being used to fore...*

203. award: **0.25 points**

TB 03-86 Given an actual demand of 59, a previous forecast ...

Given an actual demand of 59, a previous forecast of 64, and an alpha of .3, what would the forecast for the next period be using simple exponential smoothing?

- 36.9
- 57.5
- 60.5
- → 62.5
- 65.5

Multiple Choice	*TB 03-86 Given an actual demand of 59, a previous forecast ...*

204. award: **0.25 points**

TB 03-87 Given an actual demand of 105, a predicted value o...

Given an actual demand of 105, a predicted value of 97, and an alpha of .4, the simple exponential smoothing forecast for the next period would be:

- 80.8
- 93.8
- → 100.2
- 101.8
- 108.2

Multiple Choice	*TB 03-87 Given an actual demand of 105, a predicted value o...*

205. award: **0.25 points**

TB 03-88 Which of the following possible values of alpha wo...

Which of the following possible values of alpha would cause exponential smoothing to respond the most quickly to forecast errors?

- 0
- .01
- .05
- .10
- → .15

Multiple Choice	*TB 03-88 Which of the following possible values of alpha wo...*

206. award: **0.25 points**

TB 03-89 A manager uses the following equation to predict m...

A manager uses the following equation to predict monthly receipts: Yt= 40,000 + 150t. What is the forecast for July of next year if t = 0 in April of this year?

→ 40,450
40,600
42,100
42,250
42,400

Multiple Choice	*TB 03-89 A manager uses the following equation to predict m...*

207. award: **0.25 points**

TB 03-90 In trend-adjusted exponential smoothing, the trend...

In trend-adjusted exponential smoothing, the trend adjusted forecast (TAF) consists of:

→ an exponentially smoothed forecast and a smoothed trend factor
an exponentially smoothed forecast and an estimated trend value
the old forecast adjusted by a trend factor
the old forecast and a smoothed trend factor
a moving average and a trend factor

Multiple Choice	*TB 03-90 In trend-adjusted exponential smoothing, the trend...*

208. award: **0.25 points**

TB 03-91 In the additive model for seasonality, seasonali...

In the "additive" model for seasonality, seasonality is expressed as a _____ adjustment to the average; in the multiplicative model, seasonality is expressed as a _____ adjustment to the average.

→ quantity; proportion
proportion; quantity
quantity; quantity
proportion; proportion
none of the choices are correct

Multiple Choice	*TB 03-91 In the additive model for seasonality, seasonali...*

209. award: **0.25 points**

TB 03-92 Which technique is useful in computing seasonal re...

Which technique is useful in computing seasonal relatives?

double smoothing
Delphi technique
MSE
→ centred moving average
exponential smoothing

Multiple Choice	*TB 03-92 Which technique is useful in computing seasonal re...*

210. award: **0.25 points**

TB 03-93 The following equation is used to predict quarterl...

The following equation is used to predict quarterly demand: $Yt = 350 - 2.5t$, where $t = 0$ in the second quarter of last year. Quarter relatives are Q1 = 1.5; Q2 = 0.8; Q3 = 1.1; and Q4 = 0.6. What is the forecast for the last quarter of this year?

→ ○ 201
○ 335
○ 268
○ 199.5
○ 266

Multiple Choice	*TB 03-93 The following equation is used to predict quarterl...*

211. award: **0.25 points**

TB 03-94 Which of the following might be used to handle the...

Which of the following might be used to handle the cyclical component of a forecast?

→ ○ leading variable
○ MSE
○ Delphi technique
○ exponential smoothing
○ cyclical relatives

Multiple Choice	*TB 03-94 Which of the following might be used to handle the...*

212. award: **0.25 points**

TB 03-95 The primary method for associative forecasting is:

The primary method for associative forecasting is:

○ naïve method
→ ○ regression analysis
○ simple moving averages
○ centred moving averages
○ exponential smoothing

Multiple Choice	*TB 03-95 The primary method for associative forecasting is:*

213. award: **0.25 points**

TB 03-96 Which term most closely relates to associative for...

Which term most closely relates to associative forecasting techniques?

○ time series data
○ linear relationships
○ the Delphi technique
○ consumer survey
→ ○ predictor variables

Multiple Choice	*TB 03-96 Which term most closely relates to associative for...*

214. award: **0.25 points**

TB 03-97 Which of the following corresponds to the predicto...
Which of the following corresponds to the predictor variable in simple linear regression?

- regression coefficient
- dependent variable
- → independent variable
- predicted variable
- demand

Multiple Choice	*TB 03-97 Which of the following corresponds to the predicto...*

215. award: **0.25 points**

TB 03-98 Use of simple linear regression analysis assumes t...
Use of simple linear regression analysis assumes that:

I) Variations around the line are random.
II) Deviations around the line are normally distributed.
III) Predictions are to be made only within the range of observed values of the predictor variable.

- I only
- II only
- III only
- II and II only
- → I, II and III

Multiple Choice	*TB 03-98 Use of simple linear regression analysis assumes t...*

216. award: **0.25 points**

TB 03-99 The mean absolute deviation (MAD) is used to:
The mean absolute deviation (MAD) is used to:

- estimate the trend line
- eliminate forecast errors
- → measure forecast accuracy
- seasonally adjust the forecast
- all of the choices

Multiple Choice	*TB 03-99 The mean absolute deviation (MAD) is used to:*

217. award: **0.25 points**

TB 03-100 All of the following are used to measure forecast ...
All of the following are used to measure forecast errors EXCEPT?

- MAD
- → MDE
- MAPE
- MSE
- all of the choices are used

Multiple Choice	*TB 03-100 All of the following are used to measure forecast ...*

218. award: **0.25 points**

TB 03-101 MAPE measures the:
MAPE measures the:

- mean actual produced error
- → average absolute percent error
- main accuracy percent evaluation
- mean absolute produced error
- mean average percent error

Multiple Choice	*TB 03-101 MAPE measures the:*

219. award: **0.25 points**

TB 03-102 Positive forecast errors mean that the forecast:
Positive forecast errors mean that the forecast:

- was too high
- → was too low
- was accurate
- was irregular
- none of the choices

Multiple Choice	*TB 03-102 Positive forecast errors mean that the forecast:*

220. award: **0.25 points**

TB 03-103 Given forecast errors of 4, 8, and -3, what is the...
Given forecast errors of 4, 8, and -3, what is the mean absolute deviation?

- 4
- 3
- → 5
- 6
- 12

Multiple Choice	*TB 03-103 Given forecast errors of 4, 8, and -3, what is the...*

221. award: **0.25 points**

TB 03-104 MSE weighs errors according to _____ and ...
MSE weighs errors according to _____ and MAPE weighs according to _____:

- squared values; mean absolute values
- absolute values; absolute percentage error
- absolute percentage error; squared values
- → squared values; absolute percentage error
- none of the choices are correct

Multiple Choice	*TB 03-104 MSE weighs errors according to _____ and ...*

222. award: **0.25 points**

TB 03-105 Given forecast errors of 5, 0, -4, and 3, what is ...
Given forecast errors of 5, 0, -4, and 3, what is the mean absolute deviation (MAD)?

- 4
- → 3
- 2.5
- 2
- 1

Multiple Choice	*TB 03-105 Given forecast errors of 5, 0, -4, and 3, what is ...*

223. award: **0.25 points**

TB 03-106 Given forecast errors of -5, -10, and 15, what i...
Given forecast errors of -5, -10, and + 15, what is the mean absolute deviation (MAD)?

- 0
- → 10
- 30
- 175
- none of these

Multiple Choice	*TB 03-106 Given forecast errors of -5, -10, and 15, what i...*

224. award: **0.25 points**

TB 03-107 The actual demand and the forecasted demand for a ...
The actual demand and the forecasted demand for a product were as follows:

period:	1	2	3
actual:	286	255	275
forecast:	280	290	295

Compute the MAPE.

- 0.077
- → 7.7
- 20.3
- 23
- none of these

Multiple Choice	*TB 03-107 The actual demand and the forecasted demand for a ...*

225. award: **0.25 points**

TB 03-108 Which of the following is used for constructing a ...
Which of the following is used for constructing a control chart?

- mean absolute deviation (MAD)
- → mean squared error (MSE)
- tracking signal (TS)
- bias
- none of the choices are correct

Multiple Choice	*TB 03-108 Which of the following is used for constructing a ...*

226. award: **0.25 points**

TB 03-109 The two most important factors in choosing a forec...
The two most important factors in choosing a forecasting technique are:

- cost and time horizon
- accuracy and time horizon
- → cost and accuracy
- all of the choices are correct
- none of the choices are correct

Multiple Choice	*TB 03-109 The two most important factors in choosing a forec...*

227. award: **0.25 points**

TB 03-110 Which of the following factors is generally not a ...
Which of the following factors is generally not a consideration at the time of selecting an appropriate forecasting method to use?

- amount of historical data available
- forecast horizon
- → mean square error in the forecast
- evidence of a pattern in time series data
- preparation time (cost)

Multiple Choice	*TB 03-110 Which of the following factors is generally not a ...*

228. award: **0.25 points**

TB 03-111 Sales for a product have been fairly consistent ov...
Sales for a product have been fairly consistent over several years, although showing a steady upward trend. The company wants to understand what drives sales. The best forecasting technique would be:

- trend models
- judgmental methods
- moving averages
- → regression models
- exponential smoothing techniques

Multiple Choice	*TB 03-111 Sales for a product have been fairly consistent ov...*

229. award: **0.25 points**

TB 03-112 Which of the following techniques are most likely ...
Which of the following techniques are most likely to be used for forecasting demand for new products and services?

- trend models
- → judgmental methods
- moving averages
- regression models
- exponential smoothing techniques

Multiple Choice	*TB 03-112 Which of the following techniques are most likely ...*

230. award: **0.25 points**

TB 03-113 Which of the following are most likely to be used ...
Which of the following are most likely to be used for forecasting demand for the longer term?

→ regression trend models
- judgmental methods
- Delphi method
- simple exponential smoothing
- naïve method

Multiple Choice	*TB 03-113 Which of the following are most likely to be used ...*

231. award: **0.25 points**

TB 03-114 An automobile company is trying to forecast demand...
An automobile company is trying to forecast demand for minivans over the next 10 years. Which method of forecasting are they most likely to use?

→ regression trend models
- moving averages
- Delphi method
- simple exponential smoothing
- naïve method

Multiple Choice	*TB 03-114 An automobile company is trying to forecast demand...*

232. award: **0.25 points**

TB 03-115 A company is conducting long-term planning of whic...
A company is conducting long-term planning of which types of services they should offer. Which of the following forecasting techniques are they most likely to use?

- trend models
→ executive opinion
- regression models
- simple exponential smoothing
- none of the choices are used for the longer term.

Multiple Choice	*TB 03-115 A company is conducting long-term planning of whic...*

233. award: **0.25 points**

TB 03-116 A managerial approach toward forecasting which see...
A managerial approach toward forecasting which seeks to actively influence demand is:

- reactive
→ proactive
- reflexive
- protracted
- retroactive

Multiple Choice	*TB 03-116 A managerial approach toward forecasting which see...*

234. award: **0.25 points**

TB 03-117 Which of the following is not an accurate statemen...

Which of the following is not an accurate statement concerning bias in forecasts?

→ ○ bias is calculated based on the mean absolute percent error (MAPE)

○ persistent negative bias implies forecasting frequently overstating actual values

○ bias is the sum of forecast errors

○ persistent positive bias implies frequently underestimating actual values

○ bias may indicate a shift in the demand pattern

Multiple Choice	*TB 03-117 Which of the following is not an accurate statemen...*

The president of Northern University wants to fore...

The president of Northern University wants to forecast student enrolments for this academic year based on the following historical data:

YEAR	ENROLMENTS
5 years ago	15,000
4 years ago	16,000
3 years ago	18,000
2 years ago	20,000
Last year	21,000

Section Break	*The president of Northern University wants to fore...*

235. award: **0.25 points**

TB 03-118 What is the forecast for this year using a four-ye...

What is the forecast for this year using a four-year simple moving average?

→ ○ 18,750

○ 19,500

○ 21,000

○ 22,650

○ 22,800

Multiple Choice	*TB 03-118 What is the forecast for this year using a four-ye...*

236. award: **0.25 points**

TB 03-119 What is the forecast for this year using exponenti...

What is the forecast for this year using exponential smoothing with alpha = 0.5, if the forecast for two years ago was 16,000?

○ 18,750

→ ○ 19,500

○ 21,000

○ 22,650

○ 22,800

Multiple Choice	*TB 03-119 What is the forecast for this year using exponenti...*

237. award: **0.25 points**

TB 03-120 What is the forecast for this year using trend adj...

What is the forecast for this year using trend adjusted (double) smoothing with alpha(1) = .05 and alpha(2) = 0.3, if the forecast for last year was 21,000, the forecast for two years ago was 19,000, and the trend estimate for last year's forecast was 1,500?

- 18,750
- 19,500
- 21,000
- → 22,635
- 22,800

Multiple Choice	*TB 03-120 What is the forecast for this year using trend adj...*

238. award: **0.25 points**

TB 03-121 What is the forecast for this year using the least...

What is the forecast for this year using the least squares trend line for these data?

- 18,750
- 19,500
- 21,000
- 22,650
- → 22,800

Multiple Choice	*TB 03-121 What is the forecast for this year using the least...*

The business analyst for Ace Business Machines, In...

The business analyst for Ace Business Machines, Inc. wants to forecast this year's demand for manual typewriters based on the following historical data:

TIME PERIOD	DEMAND
5 years ago	900
4 years ago	700
3 years ago	600
2 years ago	500
Last year	300

Section Break	*The business analyst for Ace Business Machines, In...*

239. award: **0.25 points**

TB 03-122 What is the forecast for this year using the naive...

What is the forecast for this year using the naive approach?

- 163
- 180
- → 100
- 420
- 510

Multiple Choice	*TB 03-122 What is the forecast for this year using the naive...*

240. award: **0.25 points**

TB 03-123 What is the forecast for this year using a three-y...

What is the forecast for this year using a three-year weighted moving average with weights of .5, .3, and .2?

- 163
- 180
- 300
- → 420
- 510

Multiple Choice	*TB 03-123 What is the forecast for this year using a three-y...*

241. award: **0.25 points**

TB 03-124 What is the forecast for this year using exponenti...

What is the forecast for this year using exponential smoothing with alpha = .4, if the forecast for TWO years ago was 750?

- 163
- 180
- 300
- 420
- → 510

Multiple Choice	*TB 03-124 What is the forecast for this year using exponenti...*

242. award: **0.25 points**

TB 03-125 What is the forecast for this year using trend adj...

What is the forecast for this year using trend adjusted (double) smoothing with alpha(1) = 0.3 and alpha(2) = 0.2, if the forecast for last year was 31, the forecast for two years ago was 43, and the trend estimate for last year's forecast was -15?

- → 16,300
- 18,000
- 30,000
- 40,000
- 51,000

Multiple Choice	*TB 03-125 What is the forecast for this year using trend adj...*

243. award: **0.25 points**

TB 03-126 What is the forecast for this year using the least...

What is the forecast for this year using the least squares trend line for these data?

- 163
- → 180
- 300
- 420
- 510

Multiple Choice	*TB 03-126 What is the forecast for this year using the least...*

Professor Z needs to allocate time among several t...

Professor Z needs to allocate time among several tasks next week to include time for students' appointments. Thus, he needs to forecast the number of students who will seek appointments. He has gathered the following data:

WEEK	# STUDENTS
6 weeks ago	83
5 weeks ago	110
4 weeks ago	95
3 weeks ago	80
2 weeks ago	65
Last week	50

Section Break	*Professor Z needs to allocate time among several t...*

award:
0.25 points

244.

TB 03-127 What is this week's forecast using the naive appro...

What is this week's forecast using the naive approach?

→ ○ 35
○ 50
○ 52
○ 65
○ 78

Multiple Choice	*TB 03-127 What is this week's forecast using the naive appro...*

award:
0.25 points

245.

TB 03-128 What is this week's forecast using a three-week si...

What is this week's forecast using a three-week simple moving average?

○ 49
○ 50
○ 52
→ ○ 65
○ 78

Multiple Choice	*TB 03-128 What is this week's forecast using a three-week si...*

award:
0.25 points

246.

TB 03-129 What is this week's forecast using exponential smo...

What is this week's forecast using exponential smoothing with alpha = .2, if the forecast for two weeks ago was 90?

○ 49
○ 50
○ 52
○ 65
→ ○ 78

Multiple Choice	*TB 03-129 What is this week's forecast using exponential smo...*

247. award: **0.25 points**

TB 03-130 What is this week's forecast using trend adjusted ...

What is this week's forecast using trend adjusted (double) smoothing with alpha(1) = 0.5 and alpha(2) = 0.1, if the forecast for last week was 65, the forecast for two weeks ago was 75, and the trend estimate for last week's forecast was -5?

- 49
- 50
- → 52
- 65
- 78

Multiple Choice	*TB 03-130 What is this week's forecast using trend adjusted ...*

248. award: **0.25 points**

TB 03-131 What is this week's forecast using the least squar...

What is this week's forecast using the least squares trend line for these data?

- → 49
- 50
- 52
- 65
- 78

Multiple Choice	*TB 03-131 What is this week's forecast using the least squar...*

An operation analyst is forecasting this year's de...

An operation analyst is forecasting this year's demand for one of his company's products based on the following historical data:

YEAR	QUANTITY SOLD
Four years ago	10,000
Three years ago	12,000
Two years ago	18,000
Last year	20,000

Section Break	*An operation analyst is forecasting this year's de...*

249. award: **0.25 points**

TB 03-132 What is this year's forecast using the naive appro...

What is this year's forecast using the naive approach?

- → 22,000
- 20,000
- 18,000
- 15,000
- 12,000

Multiple Choice	*TB 03-132 What is this year's forecast using the naive appro...*

250. award: **0.25 points**

TB 03-133 What is this year's forecast using a two-year weig...

What is this year's forecast using a two-year weighted moving average with weights of .7 and .3?

→ ○ 19,400
○ 18,600
○ 19,000
○ 11,400
○ 10,600

Multiple Choice	*TB 03-133 What is this year's forecast using a two-year weig...*

251. award: **0.25 points**

TB 03-134 What is this year's forecast using exponential smo...

What is this year's forecast using exponential smoothing with alpha = .2, if last year's smoothed forecast was 15,000?

○ 20,000
○ 19,000
○ 17,500
→ ○ 16,000
○ 15,000

Multiple Choice	*TB 03-134 What is this year's forecast using exponential smo...*

252. award: **0.25 points**

TB 03-135 What is this year's forecast using the least squar...

What is this year's forecast using the least squares trend line for these data?

○ 20,000
○ 21,000
○ 22,000
○ 23,000
→ ○ 24,000

Multiple Choice	*TB 03-135 What is this year's forecast using the least squar...*

253. award: **0.25 points**

TB 03-136 The previous trend line had predicted 18,500 for t...

The previous trend line had predicted 18,500 for two years ago, and 19,700 for last year. What was the mean absolute deviation (MAD) for these forecasts?

○ 100
○ 200
→ ○ 400
○ 500
○ 800

Multiple Choice	*TB 03-136 The previous trend line had predicted 18,500 for t...*

award:
0.25 points

254.

TB 03-137 The previous trend line had predicted 18,500 for t...

The previous trend line had predicted 18,500 for two years ago, and 19,700 for last year. What was the mean absolute percent error (MAPE) for these forecasts?

- 0.21
- → 2.14
- 4.28
- 100
- 400

Multiple Choice	*TB 03-137 The previous trend line had predicted 18,500 for t...*

The dean of a school of business is forecasting to...

The dean of a school of business is forecasting total student enrolment for this year's summer session classes based on the following historical data:

YEAR	TOTAL ENROLMENT
Four years ago	2,000
Three years ago	2,200
Two years ago	2,800
Last year	3,000

Section Break	*The dean of a school of business is forecasting to...*

award:
0.25 points

255.

TB 03-138 What is this year's forecast using the naive appro...

What is this year's forecast using the naive approach?

- 2,000
- 2,200
- 2,800
- → 3,200
- none of the choices

Multiple Choice	*TB 03-138 What is this year's forecast using the naive appro...*

award:
0.25 points

256.

TB 03-139 What is this year's forecast using a three-year si...

What is this year's forecast using a three-year simple moving average?

- → 2,667
- 2,600
- 2,500
- 2,400
- 2,333

Multiple Choice	*TB 03-139 What is this year's forecast using a three-year si...*

257. award: **0.25 points**

TB 03-140 What is this year's forecast using exponential smo...

What is this year's forecast using exponential smoothing with alpha = .4, if last year's smoothed forecast was 2600?

- 2,600
- → 2,760
- 2,800
- 3,840
- 3,000

Multiple Choice	*TB 03-140 What is this year's forecast using exponential smo...*

258. award: **0.25 points**

TB 03-141 What is the annual rate of change (slope) of the l...

What is the annual rate of change (slope) of the least squares trend line for these data?

- 0
- 200
- 400
- 180
- → 360

Multiple Choice	*TB 03-141 What is the annual rate of change (slope) of the l...*

259. award: **0.25 points**

TB 03-142 What is this year's forecast using the least squar...

What is this year's forecast using the least squares trend line for these data?

- 3,600
- 3,500
- → 3,400
- 3,300
- 3,200

Multiple Choice	*TB 03-142 What is this year's forecast using the least squar...*

The owner of Leisure Boutique in a local mall is f...

The owner of Leisure Boutique in a local mall is forecasting this month's (October's) demand for one of her best-selling products based on the following historical data:

MONTH	QUANTITY SOLD
April	100
May	140
June	110
July	150
August	120
September	160

Section Break	*The owner of Leisure Boutique in a local mall is f...*

260. award: **0.25 points**

TB 03-143 What is this month's forecast using the naive appr...
What is this month's forecast using the naive approach?

- 100
- → 200
- 130
- 140
- 120

Multiple Choice	*TB 03-143 What is this month's forecast using the naive appr...*

261. award: **0.25 points**

TB 03-144 What is this month's forecast using a four-month w...
What is this month's forecast using a four-month weighted moving average with weights of .4, .3, .2, and .1?

- 120
- 129
- → 141
- 135
- 140

Multiple Choice	*TB 03-144 What is this month's forecast using a four-month w...*

262. award: **0.25 points**

TB 03-145 What is this month's forecast using exponential sm...
What is this month's forecast using exponential smoothing with alpha = .2, if August's forecast was 145?

- → 144
- 140
- 142
- 148
- 163

Multiple Choice	*TB 03-145 What is this month's forecast using exponential sm...*

263. award: **0.25 points**

TB 03-146 What is the monthly rate of change (slope) of the ...
What is the monthly rate of change (slope) of the least squares trend line for these data?

- 320
- 102
- → 8
- -0.4
- -8

Multiple Choice	*TB 03-146 What is the monthly rate of change (slope) of the ...*

award:
0.25 points

264.

TB 03-147 What is this month's forecast using the least squa...

What is this month's forecast using the least squares trend line for these data?

- 1,250
- 128.6
- 102
- → 158
- 164

Multiple Choice	*TB 03-147 What is this month's forecast using the least squa...*

The president of Northern University wants to fore...

The president of Northern University wants to forecast student enrolments for this academic year based on the following historical data:

YEAR	ENROLMENTS
5 years ago	15,000
4 years ago	16,000
3 years ago	18,000
2 years ago	20,000
Last year	21,000

Section Break	*The president of Northern University wants to fore...*

award:
0.25 points

265.

TB 03-148 What is the forecast for this year using the naive...

What is the forecast for this year using the naive approach?

- 18,750
- 19,500
- 21,000
- → 22,000
- 22,800

Multiple Choice	*TB 03-148 What is the forecast for this year using the naive...*

award:
0.25 points

266.

TB 03-149 What is the forecast for this year using a three p...

What is the forecast for this year using a three period moving average?

- 16,333
- 17,250
- 18,000
- → 19,667
- 21,000

Multiple Choice	*TB 03-149 What is the forecast for this year using a three p...*

267. award: **0.25 points**

TB 03-150 Develop a forecast for the next period, given the ...
Develop a forecast for the next period, given the data below, using a 3-period moving average.

Period	Demand
1	19
2	20
3	18
4	19
5	17

$$MA3 = \frac{18 + 19 + 17}{3} = 18$$

Short Answer *TB 03-150 Develop a forecast for the next period, given the ...*

268. award: **0.25 points**

TB 03-151 Consider the data below: (i) Determine ...
Consider the data below:

Period	Demand
11	81
12	75
13	82

(i) Determine a naive forecast for period 14.
(ii) Using exponential smoothing with a = .2, and F 12 = 80, what would the forecast for period 14 be?

(i) Naive: 82 (Since the data is stable around the average.)
(ii) Exponential:

Period	Demand	F old	Actual – F old	F new
11	81	80		
12	75	79	–5	79.0
13	82		+3	79.6

Short Answer *TB 03-151 Consider the data below: (i) Determine ...*

269. award: **0.25 points**

TB 03-152 A company has been using exponential smoothing wit...

A company has been using exponential smoothing with an alpha of .2 to forecast weekly truck sales. Given the data below, would a naive forecast have provided greater accuracy? Explain. Assume an initial exponential forecast of 60 units in period 2 (i.e., no forecast for period 1).

Period	Demand
1	57
2	62
3	58
4	60
5	60
6	56

		Exponential							
Period	Demand	Forecast	error	[e]	e^2	Naive	error	[e]	e^2
1	57	---							
2	62	60	+2	2	4.00	57	+5	5	25
3	58	60.4	–2.4	2.4	5.76	62	–4	4	16
4	60	59.92	+0.08	0.08	0.0006	58	+2	2	4
5	60	59.94	+0.06	0.06	0.0004	60	0	0	0
6	56	59.95	–3.95	3.95	15.603	60	–4	4	16
				8.49	25.373			15	61

[Use either MAD or MSE.]

Summary:	MAD	MSE
Exponential:	1.70	6.34
Naive:	3.00	15.25

Thus, the exponential forecast appears to be more accurate.

Short Answer *TB 03-152 A company has been using exponential smoothing wit...*

270. award: **0.25 points**

TB 03-153 Demand for the last four months was: (i...

Demand for the last four months was:

Month	Mar	Apr	May	Jun
Demand	6	8	10	8

(i) Predict demand for July using each of these methods:

(1) a 3-period moving average
(2) exponential smoothing with alpha equal to .20

(ii) If the naive approach had been used to predict demand for April through June, what would MAD have been for those months?

(i)

1) $(8 + 10 + 8)/3 = 26/3 = 8.33$
2) (Use naive to begin.)

Month	Demand	Forecast
March	6	-
April	8	6
May	10	6 + .20(8-6)=6.4
June	8	6.4 + 20(10-6.4)=7.12
		7.12 + .20(8 - 7.12) =7.296

(ii)

Month	March	April	May	June
Demand	6	8	10	8
Naive	-	6	8	10
Error	-	+2	+2	–2
MAD	6/3	= 2.0		

Short Answer *TB 03-153 Demand for the last four months was: (i...*

271. award: **0.25 points**

TB 03-154 Given the data below, develop a forecast for the f...

Given the data below, develop a forecast for the following period using a three-period weighted moving average and weights of .5, .3, and .2.

Period	Demand
1	19
2	20
3	18
4	19
5	17

.5(17) + .3(19) + .2(18) = 17.8

Short Answer *TB 03-154 Given the data below, develop a forecast for the f...*

272. award: **0.25 points**

TB 03-155 A manager is using exponential smoothing to predic...

A manager is using exponential smoothing to predict merchandise returns at a suburban branch of a department store chain. Given a previous forecast of 140 items, an actual number of returns of 148 items, and a smoothing constant equal to .15, what is the forecast for the next period?

$$\begin{aligned} \text{F new} &= \text{F old} + a\,(\text{actual} - \text{F old}) \\ &= 140 + .15(148 - 140) \\ &= 141.2. \end{aligned}$$

Short Answer	*TB 03-155 A manager is using exponential smoothing to predic...*

273. award: **0.25 points**

TB 03-156 A manager is using the equation below to forecast ...

A manager is using the equation below to forecast quarterly demand for a product:

$Y_t = 6{,}000 + 80t$ where t = 0 at Q2 of last year

Quarter relatives are Q1 = .6, Q2 = .9, Q3 = 1.3, and Q4 = 1.2.

What forecasts are appropriate for the last quarter of this year and the first quarter of next year?

t = 6 for Q4 this year, and t = 7 for Q1 next year.

t	Trend [Y_t]	Qtr.Rel.	Forecast
6	6480	1.2	7776
7	6560	.6	3936

Short Answer	*TB 03-156 A manager is using the equation below to forecast ...*

274. award: **0.25 points**

TB 03-157 Develop a linear trend equation for the data on br...

Develop a linear trend equation for the data on bread deliveries shown below. Forecast deliveries for period 11 through 14.

Period	Dozen deliveries
1	648
2	590
3	631
4	769
5	745
6	856
7	760
8	962
9	990
10	1100

Y_t = 518.2 + 52.164t
r = + .935
y11 = 1,092.004
y12 = 1,144.168
y13 = 1,196.332
y14 = 1,248.496.

Short Answer *TB 03-157 Develop a linear trend equation for the data on br...*

275. award: **0.25 points**

TB 03-158 A manager uses this equation to predict demand: Yt...

A manager uses this equation to predict demand: Yt= 20 + 4t. Over the past 8 periods, demand has been as follows. Are the results acceptable? Explain.

Period, t	1	2	3	4	5	6	7	8
Demand	25	28	31	34	36	43	50	54

Period, t	1	2	3	4	5	6	7	8
Demand	25	28	31	34	36	43	50	54
yt = 20+4t	24	28	32	36	40	44	48	52
Error	+1	0	-1	+2	-4	-1	+2	+2

s = 2.10; 2s control limits are + 4.20. Although all values are within control limits, the errors may be exhibiting cyclical patterns, which would suggest non-random.

Short Answer *TB 03-158 A manager uses this equation to predict demand: Yt...*

276. award: **0.25 points**

TB 03-159 Over the past five years, a firm's sales have aver...

Over the past five years, a firm's sales have averaged 250 units in the first quarter of each year, 100 units in the second quarter, 150 units in the third quarter, and 300 units in the fourth quarter. What are appropriate quarter relatives for this firm's sales? Hint: Only minimal computations are necessary.

Since a trend is not present, quarter relatives are simply a percentage of average, which is 200 units. Thus,

$$Q1 = \frac{250}{200} = 1.25;\ Q2 = \frac{100}{200} = .50;\ Q3 = \frac{150}{200} = .75;\ Q4 = \frac{300}{200} = 1.50$$

Short Answer	*TB 03-159 Over the past five years, a firm's sales have aver...*

277. award: **0.25 points**

TB 03-160 A firm has been using the following equation to pr...

A firm has been using the following equation to predict annual demand for helix gears:

$Y_t = 55 + 4t$

Demand for the past few years is shown below. Is the forecast performing as well as it might? Explain.

Year	1	2	3	4	5	6	7
Demand	60	65	69	76	85	85	

[The student must recognize that either a tracking signal or a control chart is called for, and proceed on that basis. In addition, it is necessary for the student to generate the forecasts using the equation, so that errors can be determined.]

t	Demand	Forecast	D – F	e^2
0	--			
1	--			
2	60	63	–3	9
3	65	67	–2	4
4	69	71	–2	4
5	76	75	+1	1
6	85	79	+6	36
7	85	83	+2	4
				58

$MSE = 58 \div 5 = 11.6$ and $s = \sqrt{11.6} = 3.41$.

Since limits aren't specified, assume either 2s or 3s. Even with ± 2s limits (6.82), all values are within the limits. Hence, it seems that only random variation is present, so one might say that the forecast is working. One might also observe that the first three errors are negative and the last three positive. Although six observations constitute a relatively small sample, it may be that the errors are cycling, and this would be a matter to investigate as additional data is accumulated.

Short Answer	*TB 03-160 A firm has been using the following equation to pr...*

278. award: **0.25 points**

TB 03-161 Use linear regression to develop a predictive mode...

Use linear regression to develop a predictive model for demand for ironing board covers based on sales of irons.

Year	Sales of Irons (000)	Demand for Covers (000)
1	8	5
2	7	2
3	10	6
4	6	4

(i) Develop the equation.
(ii) What is the coefficient of correlation for this data?

Computations are as follows:

y	X	xy	y^2	x^2
5.000	8.000	40.00	25.00	64.0
2.000	7.000	14.00	4.00	49.0
6.000	10.000	60.00	36.00	100.0
4.000	6.000	24.00	16.00	36.0
17.000	31.000	138.00	81.00	249.0

(i) $Yc = -1.28571 + 0.714285x$

(ii) $r = +.714$

Short Answer *TB 03-161 Use linear regression to develop a predictive mode...*

279. award: **0.25 points**

TB 03-162 Given the following data, develop a linear regress...

Given the following data, develop a linear regression model for y as a function of x.

x	y
8	10
4	5
10	15
15	20
7	10

x	y	xy	x^2	y^2
8.000	10.000	80.00	64.00	100.0
4.000	5.000	20.00	16.00	25.0
10.000	15.000	150.00	100.00	225.0
15.000	20.000	300.00	225.00	400.0
7.000	10.000	70.00	49.00	100.0
44.000	60.000	620.00	454.00	850.0

$Y_c = -.119760 + 1.377245x$

$r = +.987$

Short Answer *TB 03-162 Given the following data, develop a linear regress...*

280. award: **0.25 points**

TB 03-163 Given the following data, develop a linear regress...

Given the following data, develop a linear regression model for y as a function of x.

X	Y
2	20
4	25
6	30
6	32
8	40

X	Y	XY	X^2	Y^2
2.000	20.000	40.00	4.00	400.0
4.000	25.000	100.00	16.00	625.0
6.000	30.000	180.00	36.00	900.0
6.000	32.000	192.00	36.00	1024.0
8.000	40.000	320.00	64.00	1600.0
26.000	147.000	832.00	156.00	4,549.0

$Y_c = 12.5 + 3.25X$

$r = +.983$

Short Answer *TB 03-163 Given the following data, develop a linear regress...*

281. award: **0.25 points**

TB 03-164 A manager has been using a certain technique to fo...

A manager has been using a certain technique to forecast demand for units of web publishing software for the past six periods. Actual and predicted amounts are shown below. Would a naive forecast have produced better results?

Period	Demand	Forecast
1	90	87
2	85	88
3	91	87
4	92	89
5	95	90
6	88	92

[Essentially, the student must recognize that eight MSE or MAD should be computed for both forecasts and compared. The demand data are stable. Therefore, the most recent value of the series becomes the next forecast in the naive approach. Some students may also elect to compute control limits to see if the forecasts are in control.]

Period	Demand	Forecast	error	|e|	e^2	Naive	error	|e|	e^2
1	90	87	+3	3	9				
2	85	88	–3	3	9	90	–5	5	25
3	91	87	+4	4	16	85	+6	6	36
4	92	89	+3	3	9	91	+1	1	1
5	95	90	+5	5	25	92	+3	3	9
6	88	92	–4	4	16	95	–7	7	49
				22	84			22	120

Summary:	MAD	MSE	2s Control limits
Current method:	3.67	16.8	±8.2 [OK]
Naive method:	4.40	30.0	±11.0 [OK]

Thus, the current method is slightly superior both in terms of MAD and MSE. Either method would be considered to be in control.

Short Answer *TB 03-164 A manager has been using a certain technique to fo...*

282. award: **0.25 points**

TB 03-165 A manager wants to choose one of two forecasting a...

A manager wants to choose one of two forecasting alternatives. Each alternative was tested using historical data. The resulting forecast errors for the two are shown in the table. Analyze the data and recommend a course of action to the manager.

Period, t	1	2	3	4	5	6	7	8	9
Alt. #1	3	–2	0	2	1	–2	2	–1	2
Alt. #2	4	3	–3	–1	1	–1	0	1	0

MSE #1 = 3.875
MSE #2 = 4.75
Although Alternative #1 has the smaller MSE, it appears to be cycling and steady; Alternative #2 errors after the first three periods are small or zero. For the last six periods, Alternative #2 was much better, suggesting that approach would be better:
MSE #1 = 3.60
MSE #2 = 1.33

Short Answer *TB 03-165 A manager wants to choose one of two forecasting a...*

Reference

Time Period	Demand
7 years ago	7
6 years ago	28
5 years ago	21
4 years ago	42
3 years ago	35
2 years ago	56
Last year	49

Section Break	*Reference*

283. award: **0.25 points**

TB 03-166 What is this year's forecast using the naive appro...

What is this year's forecast using the naive approach?

The recent 6 period data has a trend and pattern: decrease by 7 and increase by 21 alternately. Therefore, the next year's forecast will be 70 (49 + 21).

Short Answer	*TB 03-166 What is this year's forecast using the naive appro...*

284. award: **0.25 points**

TB 03-167 What is this year's forecast using a four-year sim...

What is this year's forecast using a four-year simple moving average?

45.5

Short Answer	*TB 03-167 What is this year's forecast using a four-year sim...*

285. award: **0.25 points**

TB 03-168 What is this year's forecast using exponential smo...

What is this year's forecast using exponential smoothing with alpha = .25, if last year's smoothed forecast was 45?

46

Short Answer	*TB 03-168 What is this year's forecast using exponential smo...*

286. award: **0.25 points**

TB 03-169 What is this year's forecast using trend adjusted ...

What is this year's forecast using trend adjusted (double) smoothing with alpha(1) = 0.2 and alpha(2) = 0.1, if the forecast for last year was 56, the forecast for two years ago was 46, and the trend estimate for last year's forecast was 7?

61.9

Short Answer	*TB 03-169 What is this year's forecast using trend adjusted ...*

287. award: **0.25 points**

TB 03-170 What are this and next year's forecasts using the ...

What are this and next year's forecasts using the least squares trend line for these data?

62; 69

Short Answer	*TB 03-170 What are this and next year's forecasts using the ...*

Reference

	Season			
YEAR	SPRING	SUMMER	FALL	WINTER
Three years ago	18	10	26	42
Two years ago	26	18	34	50
Last year	34	26	42	58

Section Break	*Reference*

288. award: **0.25 points**

TB 03-171 What is the linear regression trend line for these...

What is the linear regression trend line for these data (t = 1 for spring, three years ago)?

y = 14.363 + 2.713t

Short Answer	*TB 03-171 What is the linear regression trend line for these...*

289. award: **0.25 points**

TB 03-172 What is the centred moving average for each season...

What is the centred moving average for each season?

Spring 26; Summer 18; Fall 34; Winter 50

Short Answer	*TB 03-172 What is the centred moving average for each season...*

290. award: **0.25 points**

TB 03-173 What is the seasonal relative for each season?
What is the seasonal relative for each season?

Spring 0.895; Summer 0.615; Fall 1.020; Winter 1.471

Short Answer	*TB 03-173 What is the seasonal relative for each season?*

291. award: **0.25 points**

TB 03-174 What is this year's seasonally adjusted forecast f...
What is this year's seasonally adjusted forecast for each season?

Spring 44.421; Summer 32.192; Fall 56.159; Winter 84.981

Short Answer	*TB 03-174 What is this year's seasonally adjusted forecast f...*

292. award: **0.25 points**

TB 04-01 Product or service design is a major factor in cus...
Product or service design is a major factor in customer satisfaction, product or service quality, production costs, and competitive advantage.

→ ○ True
○ False

True / False	*TB 04-01 Product or service design is a major factor in cus...*

293. award: **0.25 points**

TB 04-02 Core teams are teams of operations personnel that ...
Core teams are teams of operations personnel that are empowered to plan and lead product development projects.

○ True
→ ○ False

True / False	*TB 04-02 Core teams are teams of operations personnel that ...*

294. award: **0.25 points**

TB 04-03 A structured development process involves use of p...
A structured development process involves use of project management techniques.

→ ○ True
○ False

True / False	*TB 04-03 A structured development process involves use of p...*

295. award: **0.25 points**

TB 04-04 Production process design involves translating the...
Production process design involves translating the "voice of the customer" into technical product or service specifications.

- True
- → False

True / False	*TB 04-04 Production process design involves translating the...*

296. award: **0.25 points**

TB 04-05 Designing production processes involves conducting...
Designing production processes involves conducting pilot production runs and revising the process if necessary.

- → True
- False

True / False	*TB 04-05 Designing production processes involves conducting...*

297. award: **0.25 points**

TB 04-06 The two primary sources of ideas for new or redesi...
The two primary sources of ideas for new or redesigned products are marketing and suppliers.

- True
- → False

True / False	*TB 04-06 The two primary sources of ideas for new or redesi...*

298. award: **0.25 points**

TB 04-07 The process of dismantling and inspecting a compet...
The process of dismantling and inspecting a competitor's product to discover opportunities for product improvement is called prototyping.

- True
- → False

True / False	*TB 04-07 The process of dismantling and inspecting a compet...*

299. award: **0.25 points**

TB 04-08 The process of dismantling and inspecting a compet...
The process of dismantling and inspecting a competitor's product to discover opportunities for product improvement is called "reverse engineering".

- → True
- False

True / False	*TB 04-08 The process of dismantling and inspecting a compet...*

300. award: **0.25 points**

TB 04-09 Research and development has the objective of achi...

Research and development has the objective of achieving product or process innovation.

→ ○ True
○ False

True / False	*TB 04-09 Research and development has the objective of achi...*

301. award: **0.25 points**

TB 04-10 Research and development refers to the organizatio...

Research and development refers to the organizational function involved in creative work intended to increase knowledge directed toward product or process innovation.

→ ○ True
○ False

True / False	*TB 04-10 Research and development refers to the organizatio...*

302. award: **0.25 points**

TB 04-11 Research and development is the primary source of ...

Research and development is the primary source of ideas for new products for all business organizations.

○ True
→ ○ False

True / False	*TB 04-11 Research and development is the primary source of ...*

303. award: **0.25 points**

TB 04-12 Commonality of a component is beneficial for manuf...

Commonality of a component is beneficial for manufactured products but not for computer software applications.

○ True
→ ○ False

True / False	*TB 04-12 Commonality of a component is beneficial for manuf...*

304. award: **0.25 points**

TB 04-13 Basic need for a product and the rate of technolog...

Basic need for a product and the rate of technological change have significant impact on the length of a given phase of the product life cycle.

→ ○ True
○ False

True / False	*TB 04-13 Basic need for a product and the rate of technolog...*

305. award: **0.25 points**

TB 04-14 A major factor in high productivity is the standar...
A major factor in high productivity is the standardization of parts.

→ ○ True
○ False

True / False	*TB 04-14 A major factor in high productivity is the standar...*

306. award: **0.25 points**

TB 04-15 One of the main advantages of standardization is t...
One of the main advantages of standardization is that it increases the potential variety of products.

○ True
→ ○ False

True / False	*TB 04-15 One of the main advantages of standardization is t...*

307. award: **0.25 points**

TB 04-16 A disadvantage of standardization is the possibili...
A disadvantage of standardization is the possibility of standardizing designs early, which may become a reason to resist modification.

→ ○ True
○ False

True / False	*TB 04-16 A disadvantage of standardization is the possibili...*

308. award: **0.25 points**

TB 04-17 Standardization refers to the extent to which ther...
Standardization refers to the extent to which there is absence of variety in a product, service or process.

→ ○ True
○ False

True / False	*TB 04-17 Standardization refers to the extent to which ther...*

309. award: **0.25 points**

TB 04-18 Standardization can at times lead to serious diffi...
Standardization can at times lead to serious difficulties and competitive struggles, particularly when systems are running under different conditions.

○ True
→ ○ False

True / False	*TB 04-18 Standardization can at times lead to serious diffi...*

310. award: **0.25 points**

TB 04-19 Modular design is a form of standardization.
Modular design is a form of standardization.

→ ○ True
○ False

True / False	*TB 04-19 Modular design is a form of standardization.*

311. award: **0.25 points**

TB 04-20 Modular design increases costs of purchasing and c...
Modular design increases costs of purchasing and controlling inventory compared to non-modular design.

○ True
→ ○ False

True / False	*TB 04-20 Modular design increases costs of purchasing and c...*

312. award: **0.25 points**

TB 04-21 An advantage of modular design is that product fai...
An advantage of modular design is that product failures can be easier to diagnose and remedy than non-modular design.

→ ○ True
○ False

True / False	*TB 04-21 An advantage of modular design is that product fai...*

313. award: **0.25 points**

TB 04-22 Delayed differentiation and modular design are tac...
Delayed differentiation and modular design are tactics for mass customization.

→ ○ True
○ False

True / False	*TB 04-22 Delayed differentiation and modular design are tac...*

314. award: **0.25 points**

TB 04-23 Robust design describes a product that will perfor...
Robust design describes a product that will perform satisfactorily in a very narrow range of conditions.

○ True
→ ○ False

True / False	*TB 04-23 Robust design describes a product that will perfor...*

award:
0.25 points

315.

TB 04-24 The Taguchi approach to design involves identifyin...
The Taguchi approach to design involves identifying optimal operating or environmental conditions for a given product.

- True
- → False

True / False	*TB 04-24 The Taguchi approach to design involves identifyin...*

award:
0.25 points

316.

TB 04-25 Reliability refers to the ability of a product to ...
Reliability refers to the ability of a product to perform its intended function under normal conditions.

- → True
- False

True / False	*TB 04-25 Reliability refers to the ability of a product to ...*

award:
0.25 points

317.

TB 04-26 The term failure as applied to reliability means t...
The term failure as applied to reliability means that a part or item does not function at all.

- True
- → False

True / False	*TB 04-26 The term failure as applied to reliability means t...*

award:
0.25 points

318.

TB 04-27 The practice of designing products so that they ca...
The practice of designing products so that they can easily be taken apart after use is not consistent with Design for Environment (DFE), the term used to describe techniques used to incorporate environmental concerns.

- True
- → False

True / False	*TB 04-27 The practice of designing products so that they ca...*

award:
0.25 points

319.

TB 04-28 Design for Environment (DFE) stipulates product pa...
Design for Environment (DFE) stipulates product packaging should be biodegradable rather than re-used.

- True
- → False

True / False	*TB 04-28 Design for Environment (DFE) stipulates product pa...*

320. award: **0.25 points**

TB 04-29 Product liability means that a manufacturer is lia...
Product liability means that a manufacturer is liable for any injuries or damages caused by a faulty product because of poor workmanship or design.

→ ○ True
○ False

True / False	*TB 04-29 Product liability means that a manufacturer is lia...*

321. award: **0.25 points**

TB 04-30 Concurrent engineering brings people concerned w...
"Concurrent engineering" brings people concerned with manufacturing into the design phase earlier than in the "throw-over-the-wall" approach.

→ ○ True
○ False

True / False	*TB 04-30 Concurrent engineering brings people concerned w...*

322. award: **0.25 points**

TB 04-31 Concurrent engineering refers to the number of e...
"Concurrent engineering" refers to the number of engineers involved in product design.

○ True
→ ○ False

True / False	*TB 04-31 Concurrent engineering refers to the number of e...*

323. award: **0.25 points**

TB 04-32 A major benefit of CAD is increased productivity o...
A major benefit of CAD is increased productivity of designers.

→ ○ True
○ False

True / False	*TB 04-32 A major benefit of CAD is increased productivity o...*

324. award: **0.25 points**

TB 04-33 Manufacturability, i.e. ease of fabrication or ass...
Manufacturability, i.e. ease of fabrication or assembly, is a key concern in product design because of its impact on cost, productivity, and quality.

→ ○ True
○ False

True / False	*TB 04-33 Manufacturability, i.e. ease of fabrication or ass...*

325. award: **0.25 points**

TB 04-34 Design for assembly means taking into account the ...
Design for assembly means taking into account the organization's manufacturing capabilities when designing a product.

- True
- → False

True / False	*TB 04-34 Design for assembly means taking into account the ...*

326. award: **0.25 points**

TB 04-35 Design for assembly means focusing on reducing the...
Design for assembly means focusing on reducing the number of parts in a product and the methods for putting it together.

- → True
- False

True / False	*TB 04-35 Design for assembly means focusing on reducing the...*

327. award: **0.25 points**

TB 04-36 Design of services and choice of location are ofte...
Design of services and choice of location are often closely linked.

- → True
- False

True / False	*TB 04-36 Design of services and choice of location are ofte...*

328. award: **0.25 points**

TB 04-37 Service design often must take into account the de...
Service design often must take into account the degree of customer contact.

- → True
- False

True / False	*TB 04-37 Service design often must take into account the de...*

329. award: **0.25 points**

TB 04-38 Quality Function Deployment is a structured appr...
"Quality Function Deployment" is a structured approach for ensuring that customer requirements are factored into every aspect of product planning and production.

- → True
- False

True / False	*TB 04-38 Quality Function Deployment is a structured appr...*

330. award: **0.25 points**

TB 04-39 Quality function deployment (QFD) is a structured ...
Quality function deployment (QFD) is a structured approach for diagnosing sources of poor quality in production processes.

- True
- → False

True / False	*TB 04-39 Quality function deployment (QFD) is a structured ...*

331. award: **0.25 points**

TB 04-40 Quality function deployment (QFD) is based on a se...
Quality function deployment (QFD) is based on a set of matrices which relate customer requirements to company capabilities.

- True
- → False

True / False	*TB 04-40 Quality function deployment (QFD) is based on a se...*

332. award: **0.25 points**

TB 04-41 The quality function deployment (QFD) matrices are...
The quality function deployment (QFD) matrices are often referred to as the "House of Quality" because, when completed, they "house" all of the customer's quality requirements.

- True
- → False

True / False	*TB 04-41 The quality function deployment (QFD) matrices are...*

333. award: **0.25 points**

TB 04-42 Services should be designed to minimize variabilit...
Services should be designed to minimize variability in service requirements, thereby increasing the efficiency of service delivery processes.

- True
- → False

True / False	*TB 04-42 Services should be designed to minimize variabilit...*

334. award: **0.25 points**

TB 04-43 Products are generally intangible; services are ge...
Products are generally intangible; services are generally tangible.

- True
- → False

True / False	*TB 04-43 Products are generally intangible; services are ge...*

335. award: **0.25 points**

TB 04-44 Successful organizations use all but which of the ...

Successful organizations use all but which of the following elements to create new products?

- Product approval committee
- → Core marketing team
- Phase reviews
- Structured development process
- All of the above elements are used.

Multiple Choice	*TB 04-44 Successful organizations use all but which of the ...*

336. award: **0.25 points**

TB 04-45 The usual phases for product design include which ...

The usual phases for product design include which of the following?

I. Hire core team
II. Idea generation and preliminary assessment
III. Building a business case
IV. Development of product and processes
V. Launch

- I, II, III, and IV
- → II, III, IV, and V
- II, III, and IV
- I, II, III, and V
- I, II, III, IV, and V (all listed)

Multiple Choice	*TB 04-45 The usual phases for product design include which ...*

337. award: **0.25 points**

TB 04-46 What does product design not usually involve?

What does product design not usually involve?

- Market and competitor analysis.
- Build product prototypes, test and redesign
- QFD (Quality Function Deployment/the voice of the customer)
- → Designing for mass-customization.
- Conduct pilot production/service delivery runs.

Multiple Choice	*TB 04-46 What does product design not usually involve?*

338. award: **0.25 points**

TB 04-47 Which of the following is not a typical source of ...

Which of the following is not a typical source of ideas for new or redesigned products?

- Front-line employees
- Marketing research
- → Inventory records
- Reverse engineering
- Research and development

Multiple Choice	*TB 04-47 Which of the following is not a typical source of ...*

339. award: **0.25 points**

TB 04-48 Which one of the following is not a common design ...

Which one of the following is not a common design for environment (DFE) practice?

- design for disassembly
- design to minimize use of hazardous materials
- design for re-use
- → design for mass customization
- design for energy efficiency

Multiple Choice	*TB 04-48 Which one of the following is not a common design ...*

340. award: **0.25 points**

TB 04-49 Ideas for new or improved designs can come from:

Ideas for new or improved designs can come from:

- customers
- competitors
- research and development departments
- employees
- → all of the choices are correct

Multiple Choice	*TB 04-49 Ideas for new or improved designs can come from:*

341. award: **0.25 points**

TB 04-50 The process of dismantling and inspecting a compet...

The process of dismantling and inspecting a competitor's new or revised product for the purpose of gleaning design ideas is called:

- design by imitation
- product analysis
- → reverse engineering
- benchmarking
- none of the choices are correct

Multiple Choice	*TB 04-50 The process of dismantling and inspecting a compet...*

342. award: **0.25 points**

TB 04-51 In a study of innovative projects at Hewlett-Packa...

In a study of innovative projects at Hewlett-Packard, it was discovered that all of the following were required ingredients for innovation EXCEPT:

- → successful sales strategies.
- management support.
- systematic product design process.
- skilled and helpful people.
- All of the choices are required ingredients

Multiple Choice	*TB 04-51 In a study of innovative projects at Hewlett-Packa...*

343. award: **0.25 points**

TB 04-52 From focus groups, 3M noticed consumers needed an ...
From focus groups, 3M noticed consumers needed an extra hand when wrapping gifts so they created a Pop-up Tape Dispenser. This was an example of which approach to finding new product ideas?

- Listening to market complaints
- → Gaps in the market
- Exploring niche markets
- Using new technology
- Creating new market space

Multiple Choice	*TB 04-52 From focus groups, 3M noticed consumers needed an ...*

344. award: **0.25 points**

TB 04-53 Coleman, known for making camping gear, started pr...
Coleman, known for making camping gear, started producing a smoke alarm with large buttons that could be shut off with a broom handle. This was an example of which approach to finding new product ideas?

- Listening to market complaints
- Gaps in the market
- → Exploring niche markets
- Using new technology
- Creating new market space

Multiple Choice	*TB 04-53 Coleman, known for making camping gear, started pr...*

345. award: **0.25 points**

TB 04-54 Sony created the Walkman and thus developed a pers...
Sony created the Walkman and thus developed a personal portable stereo market for joggers and commuters. This was an example of which approach to finding new product ideas?

- Listening to market complaints
- Gaps in the market
- Exploring niche markets
- Using new technology
- → Creating new market space

Multiple Choice	*TB 04-54 Sony created the Walkman and thus developed a pers...*

346. award: **0.25 points**

TB 04-55 Which of the following is an issue that designers ...
Which of the following is an issue that designers must take into account in product design?

- legal, environmental and ethical issues
- reliability
- standardization
- range of operating conditions
- → all of the issues listed must be taken into account

Multiple Choice	*TB 04-55 Which of the following is an issue that designers ...*

347. award: **0.25 points**

TB 04-56 Which of the following is not a stage in the life ...

Which of the following is not a stage in the life cycle of products and services?

- incubation
- growth
- → adolescence
- saturation
- decline

Multiple Choice	*TB 04-56 Which of the following is not a stage in the life ...*

348. award: **0.25 points**

TB 04-57 The stage in the product life cycle where companie...

The stage in the product life cycle where companies attempt to prolong a product's useful life by improving its reliability or reducing costs is:

- incubation
- growth
- maturity
- saturation
- → decline

Multiple Choice	*TB 04-57 The stage in the product life cycle where companie...*

349. award: **0.25 points**

TB 04-58 Design changes are most common in which stage(s) o...

Design changes are most common in which stage(s) of the product life cycle?

I Growth
II Maturity
III Decline

- I
- I and II
- II and III
- → I and III
- I, II, and III

Multiple Choice	*TB 04-58 Design changes are most common in which stage(s) o...*

350. award: **0.25 points**

TB 04-59 Which of the following is not an action likely to ...

Which of the following is not an action likely to be taken in the last phase of a product life cycle to prolong the product's life?

- improve the reliability of the product
- reduce production costs (and therefore the price)
- redesign the product
- → increase production volume to reduce costs

Multiple Choice	*TB 04-59 Which of the following is not an action likely to ...*

351. award: **0.25 points**

TB 04-60 Which of the following is a disadvantage of standa...

Which of the following is a disadvantage of standardization in product and service design?

- increased number of inventory items
- increased training costs
- decreased expenditures on perfecting designs
- → decreased product variety
- diseconomies of scale

Multiple Choice	*TB 04-60 Which of the following is a disadvantage of standa...*

352. award: **0.25 points**

TB 04-61 One possible disadvantage of modular design is:

One possible disadvantage of modular design is:

- training costs increase
- failure diagnosis is more complex
- → the inability to disassemble some modules in order to replace a faulty part.
- individual parts lose their identities
- inventory problems arise

Multiple Choice	*TB 04-61 One possible disadvantage of modular design is:*

353. award: **0.25 points**

TB 04-62 Of the following, which is not strictly a legal an...

Of the following, which is not strictly a legal and ethical consideration of product design?

- Legislated automobile pollution standards and safety features
- → The range of conditions a product can operate within
- Bans or regulations on the use of certain materials
- Patents, trademarks and copyrights of competitors
- Standards for building materials

Multiple Choice	*TB 04-62 Of the following, which is not strictly a legal an...*

354. award: **0.25 points**

TB 04-63 Remanufacturing means:

Remanufacturing means:

- recovering materials from old products to be used in producing new products
- designing products so they can be easily taken apart
- a product has to meet the standards of government regulations
- standardized products whose design does not change over time
- → refurbishing used products by replacing worn-out or defective components

Multiple Choice	*TB 04-63 Remanufacturing means:*

355. award: **0.25 points**

TB 04-64 Which is not a key advantage of concurrent enginee...

Which is not a key advantage of concurrent engineering?

- It allows consideration of production capabilities.
- It decreases the number of conflicts and challenges for manufacturing.
- Cost and quality are taken into consideration in selecting suitable materials.
- It allows for early procurement of key machinery.
- → It allows designers to work independently from manufacturing personnel.

Multiple Choice	*TB 04-64 Which is not a key advantage of concurrent enginee...*

356. award: **0.25 points**

TB 04-65 In the area of product and service design the acro...

In the area of product and service design the acronym CAD refers to:

- conceptually appropriate design
- → computer aided design
- commercial applications design
- competitive advantage design
- completely automated design

Multiple Choice	*TB 04-65 In the area of product and service design the acro...*

357. award: **0.25 points**

TB 04-66 Which of the following is not a benefit of compone...

Which of the following is not a benefit of component commonality?

- → It increases product reliability.
- It provides savings in design time.
- It provides savings in training time for technicians.
- It provides savings based on bulk buying from suppliers
- It reduces the inventory that dealers must carry.

Multiple Choice	*TB 04-66 Which of the following is not a benefit of compone...*

358. award: **0.25 points**

TB 04-67 Service design generally differs from product desi...

Service design generally differs from product design in which of the following ways?

- Service design tends to focus on tangible factors more so than products.
- → There is less latitude in detecting and correcting errors prior to delivery for services.
- There is a lesser requirement to be aware of competitors' offerings.
- Services typically have higher barriers to entry than products.
- none of the choices are correct.

Multiple Choice	*TB 04-67 Service design generally differs from product desi...*

359. award: **0.25 points**

TB 04-68 Which of the following is not true about services?
Which of the following is not true about services?

→ ○ Service design tends to focus on tangible factors.
○ Services are often created and delivered at the same time.
○ Most services involve some degree of customization.
○ Many services have low barriers to entry and exit.
○ The convenience of location is a major factor in service design.

Multiple Choice	*TB 04-68 Which of the following is not true about services?*

360. award: **0.25 points**

TB 04-69 A structured approach for integrating customer req...
A structured approach for integrating customer requirements into every aspect of product development is known as:

○ total quality management
○ customer satisfaction
→ ○ quality function deployment
○ customer integration
○ a product development team

Multiple Choice	*TB 04-69 A structured approach for integrating customer req...*

361. award: **0.25 points**

TB 04-70 Which of the following is not a key rule used to g...
Which of the following is not a key rule used to guide the design of services?

○ Have a unifying theme to support personnel working together.
○ Make sure the service delivery system can handle variability in requirements.
○ Include features and checks to ensure reliability.
○ Design the system to be user-friendly.
→ ○ Minimize points of customer contact to reduce variability.

Multiple Choice	*TB 04-70 Which of the following is not a key rule used to g...*

362. award: **0.25 points**

TB 04-71 The term that pertains to incorporating customer i...
The term that pertains to incorporating customer ideas in product design is:

○ Total quality management (TQM)
○ Computer aided design (CAD)
→ ○ Quality function deployment (QFD)
○ robust design
○ reverse engineering

Multiple Choice	*TB 04-71 The term that pertains to incorporating customer i...*

363. award: **0.25 points**

TB 04-72 The term House of Quality is associated with:
The term "House of Quality" is associated with:

- service blueprinting
- → quality function deployment
- concurrent engineering
- robust design
- the Taguchi approach

Multiple Choice	*TB 04-72 The term House of Quality is associated with:*

364. award: **0.25 points**

TB 04-73 Which of the following is not a potential source o...
Which of the following is not a potential source of competitive advantage from product design?

- shortening the time to market
- designing environmentally friendly products
- → decreasing emphasis on component commonality in product design
- satisfying customer needs for product variety
- all of the choices are sources of competitive advantage

Multiple Choice	*TB 04-73 Which of the following is not a potential source o...*

365. award: **0.25 points**

TB 04-74 The advantages of standardization include which of...
The advantages of standardization include which of the following?

I. Extending the product life cycle
II. Fewer parts to deal with in inventory
III. Reduced time and cost to train employees
IV. Purchasing is more routine

- I, II
- I, IV
- I, II, III
- → II, III, IV
- I, II, III, IV

Multiple Choice	*TB 04-74 The advantages of standardization include which of...*

366. award: **0.25 points**

TB 04S-01 An important dimension of reliability relates to ...
An important dimension of reliability relates to "prescribed set of conditions".

- → True
- False

True / False	*TB 04S-01 An important dimension of reliability relates to ...*

367. award: **0.25 points**

TB 04S-02 One operational definition of reliability is the p...
One operational definition of reliability is the probability that a product or system will function when activated.

→ True
False

True / False	*TB 04S-02 One operational definition of reliability is the p...*

368. award: **0.25 points**

TB 04S-03 If a system is composed of two parts which must bo...
If a system is composed of two parts which must both operate, and each has a probability of .7 of operating, it is more likely than not that the system will fail.

→ True
False

True / False	*TB 04S-03 If a system is composed of two parts which must bo...*

369. award: **0.25 points**

TB 04S-04 Independent components cannot exist in the same ...
"Independent components" cannot exist in the same product.

True
→ False

True / False	*TB 04S-04 Independent components cannot exist in the same ...*

370. award: **0.25 points**

TB 04S-05 A component in a product can be considered an ind...
A component in a product can be considered an "independent" component if it has no relation to whether any other component in the product functions or not.

→ True
False

True / False	*TB 04S-05 A component in a product can be considered an ind...*

371. award: **0.25 points**

TB 04S-06 Events can be considered independent events if t...
Events can be considered "independent events" if they have no relation to the occurrence or non-occurrence of each other.

→ True
False

True / False	*TB 04S-06 Events can be considered independent events if t...*

372. award: **0.25 points**

TB 04S-07 Redundancy in product design refers to backup part...

Redundancy in product design refers to backup parts or systems.

→ True

False

True / False	*TB 04S-07 Redundancy in product design refers to backup part...*

373. award: **0.25 points**

TB 04S-08 The probability that a product will perform its in...

The probability that a product will perform its intended function under prescribed conditions is:

→ reliability

failure

functionality

redundancy

manufacturability

Multiple Choice	*TB 04S-08 The probability that a product will perform its in...*

374. award: **0.25 points**

TB 04S-09 A system is comprised of two separate units which ...

A system is comprised of two separate units which must both function in order for the system to perform as intended. The reliability of one is .4, and the reliability of the other is .5. The overall system reliability is:

.9

.3

→ .2

.1

.02

Multiple Choice	*TB 04S-09 A system is comprised of two separate units which ...*

375. award: **0.25 points**

TB 04S-10 A product comprised of two components whose failur...

A product comprised of two components whose failure probabilities are .1 each, has a reliability of:

1.8

.9

→ .81

.8

.2

Multiple Choice	*TB 04S-10 A product comprised of two components whose failur...*

376. award: **0.25 points**

TB 04S-11 An early warning security fence has three major co...

An early warning security fence has three major components which must each perform in order for the system to perform. Their reliabilities are .4, .3, and .2. The system reliability is equal to:

→ .024
.076
.10
.336
.90

Multiple Choice	*TB 04S-11 An early warning security fence has three major co...*

377. award: **0.25 points**

TB 04S-12 One of the solar instruments on a satellite has th...

One of the solar instruments on a satellite has three major parts which must all operate. Two have reliabilities of .7, and the other has a reliability of .9. In case the system fails, there is an identical backup system which kicks on automatically. The overall reliability of the system, including the backup, is closest to:

.40
.50
.60
.70
→ .80

Multiple Choice	*TB 04S-12 One of the solar instruments on a satellite has th...*

378. award: **0.25 points**

TB 04S-13 A garage door opener has three sections, which hav...

A garage door opener has three sections, which have reliabilities of .9, .8, and .9. The lowest of these has an identical backup which automatically goes on if the original fails. All three parts must operate to perform its intended function. The system reliability is closest to:

.40
.50
.60
.70
→ .80

Multiple Choice	*TB 04S-13 A garage door opener has three sections, which hav...*

379. award: **0.25 points**

TB 04S-14 A system is composed of two parts which must both ...

A system is composed of two parts which must both operate in order for the system to perform as intended. The parts have reliabilities of .6 and .5. There is an identical backup system connected to the main system by a switch which has a reliability of .9. The probability that the overall system will operate is closest to:

.30
.40
→ .50
.60
.70

Multiple Choice	*TB 04S-14 A system is composed of two parts which must both ...*

380. award: **0.25 points**

TB 04S-15 The probability that a product will fail within a ...

The probability that a product will fail within a given amount of time is often described by the:

- beta distribution
- binomial distribution
- negative Gaussian distribution
- → normal distribution
- uniform distribution

Multiple Choice	*TB 04S-15 The probability that a product will fail within a ...*

A P/OM student has purchased a four-function calcu...

A P/OM student has purchased a four-function calculator for use during exams. This calculator is perfectly reliable except for two parts: its microchip, which has a failure rate of one in every twenty hours of operation; and its battery, which has a failure rate of one in every ten hours of operation. Also, on average the battery will fail in five hours, with a standard deviation of 30 minutes.

Section Break	*A P/OM student has purchased a four-function calcu...*

381. award: **0.25 points**

TB 04S-16 Assuming that a new battery has just been installe...

Assuming that a new battery has just been installed, what is the probability that the battery will perform reliably during a one-hour exam?

- 0.05
- 0.1
- 0.2
- → 0.9
- 0.95

Multiple Choice	*TB 04S-16 Assuming that a new battery has just been installe...*

382. award: **0.25 points**

TB 04S-17 Assuming that a new battery has just been installe...

Assuming that a new battery has just been installed, what is the probability that the calculator will perform reliably during a one-hour exam?

- 0.85
- → 0.855
- 0.9
- 0.95
- 1.85

Multiple Choice	*TB 04S-17 Assuming that a new battery has just been installe...*

383. award: **0.25 points**

TB 04S-18 Assuming that a new battery has just been installe...

Assuming that a new battery has just been installed and the student brings one spare battery with him, what is the probability that the calculator will perform reliably during a one-hour exam?

- 0.89775
- → 0.9405
- 0.987525
- 0.99
- 0.9975

Multiple Choice	*TB 04S-18 Assuming that a new battery has just been installe...*

384. award: **0.25 points**

TB 04S-19 What is the probability that a new battery will fa...

What is the probability that a new battery will fail within six hours?

- 0.0228
- 0.4772
- 0.5
- 0.9544
- → 0.9772

Multiple Choice	*TB 04S-19 What is the probability that a new battery will fa...*

385. award: **0.25 points**

TB 04S-20 What service life should the manufacturer specify ...

What service life should the manufacturer specify in order to have a .8413 probability that a battery will not fail within that amount of time?

- 3.5 hours
- 4 hours
- → 4.5 hours
- 5 hours
- 5.5 hours

Multiple Choice	*TB 04S-20 What service life should the manufacturer specify ...*

The plant manager for the local electric utility c...

The plant manager for the local electric utility company wants to know the reliability of one of his small hydroelectric power generating systems. This system is comprised of two components: a generator which has a random failure rate of one in every two years of operation; and a transformer which has a random failure rate of one in every five years of operation.

Section Break	*The plant manager for the local electric utility c...*

386. award: **0.25 points**

TB 04S-21 What is the probability that this system will perf...

What is the probability that this system will perform reliably for a period of one year?

→ ○ 0.4
○ 0.5
○ 0.8
○ 0.9
○ 1.3

Multiple Choice	*TB 04S-21 What is the probability that this system will perf...*

387. award: **0.25 points**

TB 04S-22 If he were to add just a backup generator, what wo...

If he were to add just a backup generator, what would be the probability that this system would perform reliably for a period of one year?

○ 0.48
→ ○ 0.60
○ 0.72
○ 0.75
○ 0.96

Multiple Choice	*TB 04S-22 If he were to add just a backup generator, what wo...*

388. award: **0.25 points**

TB 04S-23 If he were to add both a backup generator and a ba...

If he were to add both a backup generator and a backup transformer, what would be the probability that this system would perform reliably for a period of one year?

○ 0.48
○ 0.60
→ ○ 0.72
○ 0.75
○ 0.96

Multiple Choice	*TB 04S-23 If he were to add both a backup generator and a ba...*

389. award: **0.25 points**

TB 04S-24 If the transformer has a mean time to wear-out of ...

If the transformer has a mean time to wear-out of 20 years with a standard deviation of 2 years, what is the probability that it will fail within 19 years?

○ 0.1915
→ ○ 0.3085
○ 0.383
○ 0.5
○ 0.6915

Multiple Choice	*TB 04S-24 If the transformer has a mean time to wear-out of ...*

390. award: **0.25 points**

TB 04S-25 If the transformer has a mean time to wear-out of ...

If the transformer has a mean time to wear-out of 20 years with a standard deviation of 2 years, what service life should the manufacturer specify in order to have a .9332 probability that it will last at least that long before failing?

→ ○ 17 years
○ 18 years
○ 19 years
○ 20 years
○ 21 years

Multiple Choice	*TB 04S-25 If the transformer has a mean time to wear-out of ...*

The Readylite Company produces a flashlight which ...

The Readylite Company produces a flashlight which is perfectly reliable except for two components: the battery, which has a random failure rate of one in every five hours of operation; and the light bulb, which has a random failure rate of three in every ten hours.

Section Break	*The Readylite Company produces a flashlight which ...*

391. award: **0.25 points**

TB 04S-26 What is the probability that the battery will perf...

What is the probability that the battery will perform reliably for one hour?

○ 0.2
○ 0.3
○ 0.5
○ 0.7
→ ○ 0.8

Multiple Choice	*TB 04S-26 What is the probability that the battery will perf...*

392. award: **0.25 points**

TB 04S-27 What is the probability that the flashlight will p...

What is the probability that the flashlight will perform reliably for one hour?

○ 0.50
→ ○ 0.56
○ 0.70
○ 0.80
○ 1.50

Multiple Choice	*TB 04S-27 What is the probability that the flashlight will p...*

393. award: **0.25 points**

TB 04S-28 If the company includes a backup light bulb with e...

If the company includes a backup light bulb with each flashlight, what is the probability that the flashlight will perform reliably for one hour (excluding light bulb replacement time, if any)?

- 0.6720
- → 0.7280
- 0.8736
- 0.9100
- 0.9600

Multiple Choice	*TB 04S-28 If the company includes a backup light bulb with e...*

394. award: **0.25 points**

TB 04S-29 If the company includes both a backup light bulb a...

If the company includes both a backup light bulb and a backup battery with each flashlight, what is the probability that the flashlight will perform reliably for one hour (excluding replacement time)?

- 0.6720
- 0.7280
- → 0.8736
- 0.9100
- 0.9600

Multiple Choice	*TB 04S-29 If the company includes both a backup light bulb a...*

395. award: **0.25 points**

TB 04S-30 Devices, Inc. supplies Readylite with the on-off s...

Devices, Inc. supplies Readylite with the on-off switch for this flashlight. These switches, on average, fail in fifty hours with a standard deviation of four hours. What service life should Devices specify to have a .8944 probability that a switch will last at least that long before failing?

- 43 hours
- → 45 hours
- 46 hours
- 50 hours
- 54 hours

Multiple Choice	*TB 04S-30 Devices, Inc. supplies Readylite with the on-off s...*

The chief of the design team for a new missile wan...

The chief of the design team for a new missile wants to know the reliability of its guidance system. This system is comprised of three components: a gyroscope, which has a random failure rate of 3 in every 10 launches; a computer, which has a random failure rate of 2 in every 10 launches; and a rocket motor, which has a random failure of 1 in every 10 launches.

Section Break	*The chief of the design team for a new missile wan...*

396. award: **0.25 points**

TB 04S-31 What is the probability that the gyroscope will pe...
What is the probability that the gyroscope will perform reliably during a launch?

- 0.3
- 0.504
- → 0.7
- 0.889
- 0.91

Multiple Choice	*TB 04S-31 What is the probability that the gyroscope will pe...*

397. award: **0.25 points**

TB 04S-32 What is the probability that the guidance system w...
What is the probability that the guidance system will perform reliably during a launch?

- 0.3
- → 0.504
- 0.7
- 0.889
- 0.91

Multiple Choice	*TB 04S-32 What is the probability that the guidance system w...*

398. award: **0.25 points**

TB 04S-33 If they were to connect an identical, backup gyros...
If they were to connect an identical, backup gyroscope with a perfectly reliable switch to the primary gyroscope, what would be the reliability of the gyroscope function during a launch?

- 0.3
- 0.504
- 0.7
- 0.889
- → 0.91

Multiple Choice	*TB 04S-33 If they were to connect an identical, backup gyros...*

399. award: **0.25 points**

TB 04S-34 If they were to connect an identical, backup gyros...
If they were to connect an identical, backup gyroscope with a .90 reliable switch to the primary gyroscope, what would be the reliability of the gyroscope function during a launch?

- 0.3
- 0.504
- 0.7
- 0.889
- → 0.91

Multiple Choice	*TB 04S-34 If they were to connect an identical, backup gyros...*

400. award: **0.25 points**

TB 04S-35 If the battery used to power the computer has a me...

If the battery used to power the computer has a mean time to fail of 60 minutes with a standard deviation of 20 minutes, what is the probability that it will last for a launch of 30 minutes duration without failing?

→ ○ 0.9332
○ 0.8664
○ 0.5668
○ 0.4332
○ 0.0668

Multiple Choice	*TB 04S-35 If the battery used to power the computer has a me...*

The chief design engineer for Colonial Warning Sys...

The chief design engineer for Colonial Warning Systems wants to know the reliability of a two-lamp device intended to warn the operator of potential problems with a commercial steam kettle. One (either) lamp is to be lit if steam pressure drops below the desired level, and two (both) are to be lit if temperature drops below a desired level. His supplier estimates that a lamp has a failure rate of .2 per hour of operation, and a mean wear-out time of seven years with a standard deviation of eight months.

Section Break	*The chief design engineer for Colonial Warning Sys...*

401. award: **0.25 points**

TB 04S-36 What is the probability that a lamp will perform r...

What is the probability that a lamp will perform reliably for one hour?

○ 0
○ .2
→ ○ .8
○ .9
○ 1

Multiple Choice	*TB 04S-36 What is the probability that a lamp will perform r...*

402. award: **0.25 points**

TB 04S-37 If the temperature drops below the desired level, ...

If the temperature drops below the desired level, what is the probability the system will perform reliably for one hour?

○ .04
○ .4
○ .6
→ ○ .64
○ .96

Multiple Choice	*TB 04S-37 If the temperature drops below the desired level, ...*

403. award: **0.25 points**

TB 04S-38 If the pressure drops below the desired level, wha...

If the pressure drops below the desired level, what is the probability the system will perform reliably for one hour?

- .04
- .4
- .6
- .64
- → .96

Multiple Choice	*TB 04S-38 If the pressure drops below the desired level, wha...*

404. award: **0.25 points**

TB 04S-39 What is the probability that a lamp will last at l...

What is the probability that a lamp will last at least until the expiration of the warranty, which is six years?

- .9772
- → .9332
- .8664
- .8413
- .4332

Multiple Choice	*TB 04S-39 What is the probability that a lamp will last at l...*

405. award: **0.25 points**

TB 04S-40 What warranty period for a lamp would give a proba...

What warranty period for a lamp would give a probability of .9987 that it would not require warranty service?

- → 5 years
- 5.67 years
- 6.33 years
- 7 years
- 9 years

Multiple Choice	*TB 04S-40 What warranty period for a lamp would give a proba...*

406. award: **0.25 points**

TB 04S-41 A component of a research instrument has a probabi...

A component of a research instrument has a probability of .98 of operating. It has a backup component that has a probability of .95 of operating. The instrument will function if either component operates. Determine the overall reliability of this subsystem under these conditions:
(i) The backup and the main component are connected by a switch which is certain to function should the main component fail.
(ii) The switch to the backup has a probability of .99 of operating.

(i) .98 + .02(1.00).95 = .999
(ii) .98 + .02(.99).95 = .9988

Short Answer	*TB 04S-41 A component of a research instrument has a probabi...*

407. award: **0.25 points**

TB 04S-42 A computer has three main modules which have indiv...

A computer has three main modules which have individual reliabilities of .80, .90, and .90. Because of recent failures, management is now considering adding redundancy. Determine the reliability of the system with backups under these conditions:

(i) Each module has a backup with a reliability equal to its own and a backup switch with a reliability of 1.00.
(ii) The backup consists of an identical computer which operates as a whole rather than backing up individual sections. The single switch for the backup computer has a reliability of .96.

(i) [.80 + .20(.80)] x [.90 + .10(.90)] x [.80 + .20(.80)] = .9124
(ii) [.80(.90).80] + {1 - [.80(.90).80] x .96[.80(.90).80]} = .8105

Short Answer	*TB 04S-42 A computer has three main modules which have indiv...*

408. award: **0.25 points**

TB 04S-43 A cathode ray tube has a mean time between failure...

A cathode ray tube has a mean time between failures of 80 weeks. Determine these probabilities:

(i) The unit will not last 64 weeks.
(ii) The unit will last for at least 88 weeks.
(iii) Neither of the choices occurs.

MTTF = 80 weeks. [Probabilities are from Table 4S-1.]
(i) T = 64, T/MTTF = 64/80 = .80 1 - .4493 = .5507
(ii) T = 88, T/MTTF = 88/80 = 1.10. P(at least 88) = .3329
(iii) 64 < T < 88 is 1 - (.5507 + .3329) = .1164

Short Answer	*TB 04S-43 A cathode ray tube has a mean time between failure...*

409. award: **0.25 points**

TB 04S-44 A life monitoring system can operate an average of...

A life monitoring system can operate an average of 15 months between failures. Determine these probabilities:

(i) a failure within 12 months of the previous failure
(ii) a failure between 12 and 18 months after the previous failure

MTTF = 15 months
(i) T = 12, T/MTTF = .80. From Table 4S - 1, P(failure before T) = 1 - .4493 = .5507.
(ii) 12 <T < 18 is P(failure before 18) - P(failure before 12). 18/15 = 1.2, hence [1 - .3012] - [1 - .4493] = .1481.

Short Answer	*TB 04S-44 A life monitoring system can operate an average of...*

410. award: **0.25 points**

TB 04S-45 The average time between failures for a solenoid i...

The average time between failures for a solenoid is 36 months. Determine the following probabilities:

(i) probability of failure before 36 months
(ii) the probability that a system which is composed of two such solenoids will fail within 36 months if both must work for the system to work

T = 36 months, MTTF = 36 months, T/MTTF = 1.00
(i) P(T36) = 1 - .3679 = .6321 [From Table 4S-1]
(ii) P(failure) = 1 - P(both work) = 1 - .3679(.3679) = .8646.

Short Answer *TB 04S-45 The average time between failures for a solenoid i...*

411. award: **0.25 points**

TB 04S-46 The useful life of a certain valve at a pumping st...

The useful life of a certain valve at a pumping station is normally distributed with a mean of 48 months and a standard deviation of five months. Determine these probabilities:

(i) The valve will fail within 44 months of its installation.
(ii) The valve will last at least 40 months, before failing.

m = 48 months
sigma a = 5 months

(i)

$$z = \frac{(44 - 48)}{5} = -.80. \text{ From Appendix B, Table B, } P(x < 44) = .2119$$

(ii)

$$z = \frac{(40 - 48)}{5} = -1.60. \text{ From Appendix B, Table B, } P(x < 44) = 1 - .0548 = .9452$$

Short Answer *TB 04S-46 The useful life of a certain valve at a pumping st...*

412. award: **0.25 points**

TB 04S-47 The estimated service life of a part is normally d...

The estimated service life of a part is normally distributed with a mean of 500 hours and a standard deviation of 40 hours. Determine the probability of failing in these intervals:

(i) before its mean life
(ii) after 450 hours of operation
(iii) between 540 hours and 600 hours

(Appendix B, Table B)

(i) z = 0.00 P(z<0.00) = .5000
(ii)

$$z = \frac{(450 - 500)}{40} = -1.25 \; P(z > -1.25) = .8944$$

(iii) z540 = + 1.00 P(z<+1.00) = .8413
z600 = + 2.50 P(z< + 2.50) = .9938
P(+ 1.00<z< + 2.50) = .9938 - .8413 = .1525

Short Answer	*TB 04S-47 The estimated service life of a part is normally d...*

A certain product is comprised of two components: ...

A certain product is comprised of two components: X and Y. Component X has a random failure rate of one in every ten years, while component Y's random failure rate is one in every five years. This product has a mean time to wear-out of eight years with a standard deviation of one year.

Section Break	*A certain product is comprised of two components: ...*

413. award: **0.25 points**

TB 04S-48 What is the probability that component Y will fail...

What is the probability that component Y will fail during a year of operation?

.2

Short Answer	*TB 04S-48 What is the probability that component Y will fail...*

414. award: **0.25 points**

TB 04S-49 What is the probability that component X will perf...

What is the probability that component X will perform reliably for a year?

.9

Short Answer	*TB 04S-49 What is the probability that component X will perf...*

415. award: **0.25 points**

TB 04S-50 What is the probability that component Y will perf...
What is the probability that component Y will perform reliably for a year?

.8

Short Answer	*TB 04S-50 What is the probability that component Y will perf...*

416. award: **0.25 points**

TB 04S-51 What is the probability that this product will per...
What is the probability that this product will perform reliably for a year?

.72

Short Answer	*TB 04S-51 What is the probability that this product will per...*

417. award: **0.25 points**

TB 04S-52 What would be the reliability of this product if c...
What would be the reliability of this product if component X were backed up with an identical component?

.792

Short Answer	*TB 04S-52 What would be the reliability of this product if c...*

418. award: **0.25 points**

TB 04S-53 What would be the reliability of this product if c...
What would be the reliability of this product if component Y were backed up with an identical component?

.864

Short Answer	*TB 04S-53 What would be the reliability of this product if c...*

419. award: **0.25 points**

TB 04S-54 What would be the reliability of this product if b...
What would be the reliability of this product if both components were redundant?

.9504

Short Answer	*TB 04S-54 What would be the reliability of this product if b...*

420. award: **0.25 points**

TB 04S-55 What is the probability that this product will fai...
What is the probability that this product will fail within eight years? Nine years? Six years?

.5; 0.8413; .0228

Short Answer	*TB 04S-55 What is the probability that this product will fai...*

421. award: **0.25 points**

TB 04S-56 What is the service life for this product which wi...
What is the service life for this product which will provide a .5 probability of not failing within that amount of time?

A .6915 probability?
A .8413 probability?
A .9332 probability?

8 years; 7.5 years; 7 years; 6.5 years

Short Answer	*TB 04S-56 What is the service life for this product which wi...*

422. award: **0.25 points**

TB 05-01 The term capacity refers to an upper limit on the ...
The term capacity refers ~~to an upper limit on the workload an operating unit can~~ handle.

→ ○ True
○ False

True / False	*TB 05-01 The term capacity refers to an upper limit on the ...*

423. award: **0.25 points**

TB 05-02 Capacity decisions are always long-term decisions.
Capacity decisions are always long-term decisions.

○ True
→ ○ False

True / False	*TB 05-02 Capacity decisions are always long-term decisions.*

424. award: **0.25 points**

TB 05-03 If a company produces a variety of outputs, capaci...
If a company produces a variety of outputs, capacity has to be expressed as several partial measures; no overall measure of capacity is possible.

○ True
→ ○ False

True / False	*TB 05-03 If a company produces a variety of outputs, capaci...*

425. award: **0.25 points**

TB 05-04 Capacity decisions often involve a long-term commi...
Capacity decisions often involve a long-term commitment of resources which, when implemented, are difficult or impossible to modify without major added costs.

→ ○ True
○ False

True / False	*TB 05-04 Capacity decisions often involve a long-term commi...*

426. award: **0.25 points**

TB 05-05 Stating capacity in dollar amounts generally resul...
Stating capacity in dollar amounts generally results in a consistent measure of capacity.

○ True
→ ○ False

True / False	*TB 05-05 Stating capacity in dollar amounts generally resul...*

427. award: **0.25 points**

TB 05-06 Design capacity refers to the maximum output that ...
Design capacity refers to the maximum output that can possibly be attained under ideal conditions.

→ ○ True
○ False

True / False	*TB 05-06 Design capacity refers to the maximum output that ...*

428. award: **0.25 points**

TB 05-07 Design capacity refers to the maximum output possi...
Design capacity refers to the maximum output possible given a product mix, operating hours, and machine maintenance.

○ True
→ ○ False

True / False	*TB 05-07 Design capacity refers to the maximum output possi...*

429. award: **0.25 points**

TB 05-08 Efficiency is defined as the ratio of actual outpu...
Efficiency is defined as the ratio of actual output to effective capacity.

→ ○ True
○ False

True / False	*TB 05-08 Efficiency is defined as the ratio of actual outpu...*

430. award: **0.25 points**

TB 05-09 Utilization is defined as the ratio of effective c...
Utilization is defined as the ratio of effective capacity to design capacity.

- True
- → False

True / False	*TB 05-09 Utilization is defined as the ratio of effective c...*

431. award: **0.25 points**

TB 05-10 Facilities are a major factor influencing effectiv...
Facilities are a major factor influencing effective capacity.

- → True
- False

True / False	*TB 05-10 Facilities are a major factor influencing effectiv...*

432. award: **0.25 points**

TB 05-11 An example of an external factor which influences ...
An example of an external factor which influences effective capacity is pollution standards for products.

- → True
- False

True / False	*TB 05-11 An example of an external factor which influences ...*

433. award: **0.25 points**

TB 05-12 Evaluation of capacity alternatives involves econo...
Evaluation of capacity alternatives involves economic calculations only.

- True
- → False

True / False	*TB 05-12 Evaluation of capacity alternatives involves econo...*

434. award: **0.25 points**

TB 05-13 As forecasts are usually only accurate for the sho...
As forecasts are usually only accurate for the short term, forecasts are not useful in long-term capacity decisions.

- True
- → False

True / False	*TB 05-13 As forecasts are usually only accurate for the sho...*

435. award: **0.25 points**

TB 05-14 Capacity increases are usually acquired in fairly ...
Capacity increases are usually acquired in fairly large "chunks" rather than smooth increments.

→ ○ True
○ False

True / False	*TB 05-14 Capacity increases are usually acquired in fairly ...*

436. award: **0.25 points**

TB 05-15 In break-even analysis, costs that vary directly w...
In break-even analysis, costs that vary directly with volume of output are referred to as fixed costs because they are fixed to the level of output.

○ True
→ ○ False

True / False	*TB 05-15 In break-even analysis, costs that vary directly w...*

437. award: **0.25 points**

TB 05-16 The break-even quantity can be determined by divid...
The break-even quantity can be determined by dividing the fixed costs by the difference between the revenue per unit and the variable cost per unit.

→ ○ True
○ False

True / False	*TB 05-16 The break-even quantity can be determined by divid...*

438. award: **0.25 points**

TB 05-17 Among the assumptions of break-even analysis is th...
Among the assumptions of break-even analysis is that always only one product is involved.

○ True
→ ○ False

True / False	*TB 05-17 Among the assumptions of break-even analysis is th...*

439. award: **0.25 points**

TB 05-18 Which is not true about long-term capacity?
Which is not true about long-term capacity?

○ excess capacity can serve as a barrier to entry
○ capacity may be difficult and costly to modify
→ ○ exceeding capacity minimizes operating costs
○ capacity affects the ability to satisfy customer's demand
○ capacity is usually a major determinant of initial capital costs

Multiple Choice	*TB 05-18 Which is not true about long-term capacity?*

440. award: **0.25 points**

TB 05-19 Long-term capacity decisions are important for whi...
Long-term capacity decisions are important for which of the following reasons?

I. the impact they have on the ability to meet future requirements
II. the increased reliance on debt rather than equity financing
III. as determinant of initial capital costs
IV. the effect on operating costs

- I and III only
- I, II, and III only
- II and IV only
- → I, III, and IV only
- I, II, III, and IV

Multiple Choice	*TB 05-19 Long-term capacity decisions are important for whi...*

441. award: **0.25 points**

TB 05-20 Capacity refers to the upper limit of:
Capacity refers to the upper limit of:

- inventories
- demand
- supplies
- → rate of output
- finances

Multiple Choice	*TB 05-20 Capacity refers to the upper limit of:*

442. award: **0.25 points**

TB 05-21 The maximum possible output under ideal conditions...
The maximum possible output under ideal conditions is:

- → design capacity
- effective capacity
- actual output
- efficiency
- utilization

Multiple Choice	*TB 05-21 The maximum possible output under ideal conditions...*

443. award: **0.25 points**

TB 05-22 The maximum possible output given a product mix, s...
The maximum possible output given a product mix, scheduling difficulties, operating hours, and so on, is:

- utilization
- design capacity
- efficiency
- → effective capacity
- available capacity

Multiple Choice	*TB 05-22 The maximum possible output given a product mix, s...*

444. award: **0.25 points**

TB 05-23 Efficiency is defined as the ratio of:
Efficiency is defined as the ratio of:

→ ○ actual output to effective capacity
○ actual output to design capacity
○ design capacity to effective capacity
○ effective capacity to actual output
○ design capacity to actual output

Multiple Choice	*TB 05-23 Efficiency is defined as the ratio of:*

445. award: **0.25 points**

TB 05-24 Utilization is defined as the ratio of:
Utilization is defined as the ratio of:

○ actual output to effective capacity
→ ○ actual output to design capacity
○ design capacity to effective capacity
○ effective capacity to actual output
○ design capacity to actual output

Multiple Choice	*TB 05-24 Utilization is defined as the ratio of:*

446. award: **0.25 points**

TB 05-25 The ratio of actual output to effective capacity i...
The ratio of actual output to effective capacity is:

○ design capacity
○ effective capacity
○ actual capacity
→ ○ efficiency
○ utilization

Multiple Choice	*TB 05-25 The ratio of actual output to effective capacity i...*

447. award: **0.25 points**

TB 05-26 The ratio of actual output to design capacity is:
The ratio of actual output to design capacity is:

○ design capacity
○ effective capacity
○ actual capacity
○ efficiency
→ ○ utilization

Multiple Choice	*TB 05-26 The ratio of actual output to design capacity is:*

448. award: **0.25 points**

TB 05-27 Given the following information, the efficiency is...
Given the following information, the efficiency is:

Effective capacity = 80 units per day
Design capacity = 100 units per day
Utilization = 48%

- 20%
- 35%
- 48%
- → 60%
- 80%

Multiple Choice	*TB 05-27 Given the following information, the efficiency is...*

449. award: **0.25 points**

TB 05-28 Given the following information, the efficiency is...
Given the following information, the efficiency is:

Effective capacity = 50 units per day
Design capacity = 100 units per day
Actual output = 30 units per day

- 40%
- 50%
- → 60%
- 80%
- 90%

Multiple Choice	*TB 05-28 Given the following information, the efficiency is...*

450. award: **0.25 points**

TB 05-29 Given the following information, the utilization i...
Given the following information, the utilization is:

Effective capacity = 20 units per day
Design capacity = 60 units per day
Actual output = 15 units per day

- → 1/4
- 1/3
- 1/2
- 3/4
- none of these

Multiple Choice	*TB 05-29 Given the following information, the utilization i...*

451. award: **0.25 points**

TB 05-30 Which of the following is not a determinant of eff...
Which of the following is not a determinant of effective capacity?

- facilities
- product mix
- → actual output
- human factors
- external factors

Multiple Choice	*TB 05-30 Which of the following is not a determinant of eff...*

452. award: **0.25 points**

TB 05-31 Considerations in forecasting long-term demand inc...
Considerations in forecasting long-term demand include:

I) identifying demand trends
II) duration of demand trends
III) amplitude of demand cycles

- I only
- II only
- III only
- I and II only
- → I, II and III

Multiple Choice	*TB 05-31 Considerations in forecasting long-term demand inc...*

453. award: **0.25 points**

TB 05-32 Which of the following is not a consideration for ...
Which of the following is not a consideration for developing capacity alternatives?

- → design rigidity into systems
- taking a big-picture approach to capacity changes
- preparing to deal with capacity in "chunks"
- attempting to smooth out capacity requirements
- identifying the optimal operating level

Multiple Choice	*TB 05-32 Which of the following is not a consideration for ...*

454. award: **0.25 points**

TB 05-33 Seasonal variations are often easier to deal with ...
Seasonal variations are often easier to deal with in capacity planning than random variations because seasonal variations tend to be:

- smaller
- larger
- → predictable
- controllable
- less frequent

Multiple Choice	*TB 05-33 Seasonal variations are often easier to deal with ...*

455. award: **0.25 points**

TB 05-34 Production units have an optimal rate of output wh...
Production units have an optimal rate of output where:

- total costs are minimum
- → unit costs are minimum
- marginal costs are minimum
- rate of output is maximum
- total revenue is maximum

Multiple Choice	*TB 05-34 Production units have an optimal rate of output wh...*

456. award: **0.25 points**

TB 05-35 When the output is less than the optimal rate of o...
When the output is less than the optimal rate of output, the unit cost will be:

- lower
- the same
- → higher
- could be either higher or lower
- could be either higher, lower or the same

Multiple Choice	*TB 05-35 When the output is less than the optimal rate of o...*

457. award: **0.25 points**

TB 05-36 At the break-even point:
At the break-even point:

- output equals capacity
- → total cost equals total revenue
- total cost equals profit
- variable cost equals fixed cost
- variable cost equals total revenue

Multiple Choice	*TB 05-36 At the break-even point:*

458. award: **0.25 points**

TB 05-37 An alternative will have fixed costs of $10,000 pe...
An alternative will have fixed costs of $10,000 per month, variable costs of $50 per unit, and revenue of $70 per unit. The break-even point volume is:

- 100
- 2,000
- → 500
- 1,000
- none of these

Multiple Choice	*TB 05-37 An alternative will have fixed costs of $10,000 pe...*

459. award: **0.25 points**

TB 05-38 For fixed costs of $1,000, revenue per unit of $1,...
For fixed costs of $1,000, revenue per unit of $1, and variable cost per unit of $0.80, the break-even quantity is:

- 1,000
- 1,250
- 2,250
- → 5,000
- none of these

Multiple Choice	*TB 05-38 For fixed costs of $1,000, revenue per unit of $1,...*

460. award: **0.25 points**

TB 05-39 Which of the following are assumptions of the brea...
Which of the following are assumptions of the break-even model?

I. Usually one product is involved.
II. Everything that is produced can be sold.
III. The revenue per unit will be the same regardless of volume.

- I only
- I and II only
- II only
- II and III only
- → I, II and III

Multiple Choice	*TB 05-39 Which of the following are assumptions of the brea...*

461. award: **0.25 points**

TB 05-40 Which of the following is not an assumption of the...
Which of the following is not an assumption of the break-even model?

- One product is involved.
- Everything that is produced can be sold.
- → Total variable cost is the same regardless of volume.
- Fixed costs do not change with volume changes.
- Revenue per unit is the same regardless of volume.

Multiple Choice	*TB 05-40 Which of the following is not an assumption of the...*

462. award: **0.25 points**

TB 05-41 What is the break-even quantity for the following ...
What is the break-even quantity for the following situation?

FC = $1,200 per week
VC = $2 per unit
Revenue (R) = $6 per unit

- 100
- 200
- 600
- 1,200
- → 300

Multiple Choice	*TB 05-41 What is the break-even quantity for the following ...*

The owner of Firewood To Go is considering buying ...
The owner of Firewood To Go is considering buying a hydraulic wood splitter which sells for $50,000. He figures it will cost an additional $100 per cord to purchase and split wood with this machine, while he can sell each cord of split wood for $125.

Section Break	*The owner of Firewood To Go is considering buying ...*

463. award: **0.25 points**

TB 05-42 If, for this machine, design capacity is 50 cords ...

If, for this machine, design capacity is 50 cords per day, effective capacity is 40 cords per day, and actual output is anticipated to be 35 cords per day, what would be its utilization?

- 100%
- 80%
- 75%
- → 70%
- 0%

Multiple Choice	*TB 05-42 If, for this machine, design capacity is 50 cords ...*

464. award: **0.25 points**

TB 05-43 If, for this machine, design capacity is 50 cords ...

If, for this machine, design capacity is 50 cords per day, effective capacity is 40 cords per day, and actual output is expected to be 32 cords per day, what would be its efficiency?

- 100%
- → 80%
- 75%
- 70%
- 0%

Multiple Choice	*TB 05-43 If, for this machine, design capacity is 50 cords ...*

465. award: **0.25 points**

TB 05-44 What would the potential profit be if he were to s...

What would the potential profit be if he were to split 4,000 cords of wood with this machine?

- $0
- $200,000
- $100,000
- $75,000
- → $50,000

Multiple Choice	*TB 05-44 What would the potential profit be if he were to s...*

466. award: **0.25 points**

TB 05-45 How many cords of wood would he have to split with...

How many cords of wood would he have to split with this machine to break even?

- 5,000
- 3,000
- → 2,000
- 1,000
- 0

Multiple Choice	*TB 05-45 How many cords of wood would he have to split with...*

467. award: **0.25 points**

TB 05-46 How many cords of wood would he have to split with...
How many cords of wood would he have to split with this machine to make a profit of $30,000?

→ ○ 3,200
○ 1,500
○ 2,000
○ 1,000
○ 500

Multiple Choice	*TB 05-46 How many cords of wood would he have to split with...*

The owner of a greenhouse and nursery is consideri...
The owner of a greenhouse and nursery is considering whether to spend $6,000 to acquire the licensing rights to grow a new variety of rosebush, which she could then sell for $6 each.
Variable costs would be $3 per rosebush.

Section Break	*The owner of a greenhouse and nursery is consideri...*

468. award: **0.25 points**

TB 05-47 If her available land has design and effective cap...
If her available land has design and effective capacities of 3,000 and 2,000 rosebushes per year respectively, and she plans to grow 1,200 rosebushes each year on this land, what will be the utilization of this land?

○ 0%
→ ○ 40%
○ 60%
○ 67%
○ 100%

Multiple Choice	*TB 05-47 If her available land has design and effective cap...*

469. award: **0.25 points**

TB 05-48 If her available land has design and effective cap...
If her available land has design and effective capacities of 3,000 and 2,000 rosebushes per year, respectively, and she expects to be 80% efficient in her use of this land, how many rosebushes does Rose plan to grow each year on this land?

→ ○ 1,600
○ 2,400
○ 3,000
○ 2,000
○ 1,000

Multiple Choice	*TB 05-48 If her available land has design and effective cap...*

470. award: **0.25 points**

TB 05-49 What would the profit be if she were to produce an...

What would the profit be if she were to produce and sell 5,000 rosebushes?

- $0
- → $9,000
- $15,000
- $10,000
- $30,000

Multiple Choice	*TB 05-49 What would the profit be if she were to produce an...*

471. award: **0.25 points**

TB 05-50 How many rosebushes would she have to produce and ...

How many rosebushes would she have to produce and sell in order to break even?

- 1,600
- 2,400
- → 2,000
- 1,000
- 1,500

Multiple Choice	*TB 05-50 How many rosebushes would she have to produce and ...*

472. award: **0.25 points**

TB 05-51 How many rosebushes would she have to produce and ...

How many rosebushes would she have to produce and sell in order to make a profit of $6,000?

- 1,600
- 2,400
- 3,000
- 1,000
- → 4,000

Multiple Choice	*TB 05-51 How many rosebushes would she have to produce and ...*

A recruiter for a job placement agency is consider...

A recruiter for a job placement agency is considering whether to pay $50,000 per year to lease a new recruiting facility in a prime location in Washington, D. C. He estimates it will cost $50 per recruit to process the paperwork at this new location. He receives a $75 commission for each new recruit he processes.

Section Break	*A recruiter for a job placement agency is consider...*

473. award: **0.25 points**

TB 05-52 If the office space at this new location has desig...

If the office space at this new location has design and effective capacities of 10,000 and 7,500 recruits processed annually, respectively, and 5,000 recruits will be processed per year, what will be the utilization of the office space?

- 0%
- 30%
- → 50%
- 60%
- 100%

Multiple Choice	*TB 05-52 If the office space at this new location has desig...*

474. award: **0.25 points**

TB 05-53 If his office space at this new location has desig...

If his office space at this new location has design and effective capacities of 10,000 and 7,500 recruits processed annually, respectively, and he plans to be 80% efficient in his use of this space, how many recruits does he plan to process per year?

- 5,000
- 8,000
- 2,000
- 4,000
- → 6,000

Multiple Choice	*TB 05-53 If his office space at this new location has desig...*

475. award: **0.25 points**

TB 05-54 What would be his annual profit if he were to proc...

What would be his annual profit if he were to process 4,000 recruits per year at this new location?

- $0
- $75,000
- → $50,000
- $100,000
- $300,000

Multiple Choice	*TB 05-54 What would be his annual profit if he were to proc...*

476. award: **0.25 points**

TB 05-55 How many recruits would he have to process annuall...

How many recruits would he have to process annually to break even at this new location?

- 5,000
- 8,000
- → 2,000
- 4,000
- 6,000

Multiple Choice	*TB 05-55 How many recruits would he have to process annuall...*

477. award: **0.25 points**

TB 05-56 How many recruits would he have to process annuall...

How many recruits would he have to process annually to make a profit of $100,000 at this new location?

- 5,000
- 8,000
- 2,000
- 4,000
- → 6,000

Multiple Choice	*TB 05-56 How many recruits would he have to process annuall...*

Doctor J. is considering purchasing a new blood an...

Doctor J. is considering purchasing a new blood analysis machine for $60,000. He estimates that he could charge $25.00 for an office visit to have a patient's blood analyzed, while the variable cost of a blood analysis would be $5.00.

Section Break	*Doctor J. is considering purchasing a new blood an...*

478. award: **0.25 points**

TB 05-57 If this new blood analysis machine has design and ...

If this new blood analysis machine has design and effective capacities of 6,000 and 5,000 blood analyses per year, respectively, and Dr. J. expects to perform 4,500 blood analyses each year, what will be the utilization of this machine?

- 0%
- → 75%
- 83%
- 90%
- 100%

Multiple Choice	*TB 05-57 If this new blood analysis machine has design and ...*

479. award: **0.25 points**

TB 05-58 If this new blood analysis machine has design and ...

If this new blood analysis machine has design and effective capacities of 6,000 and 5,000 blood analyses per year, respectively, and Dr. J. expects to be 80% efficient in his use of this machine, how many blood analyses does he plan to perform each year?

- 3,200
- 4,800
- → 4,000
- 1,000
- 5,000

Multiple Choice	*TB 05-58 If this new blood analysis machine has design and ...*

480. award: **0.25 points**

TB 05-59 What would be his profit if he were to perform 5,0...

What would be his profit if he were to perform 5,000 blood analyses?

- $0
- → $40,000
- $60,000
- $25,000
- $100,000

Multiple Choice	*TB 05-59 What would be his profit if he were to perform 5,0...*

481. award: **0.25 points**

TB 05-60 How many blood analyses would he have to perform i...

How many blood analyses would he have to perform in order to break even?

- 12,000
- 2,400
- → 3,000
- 1,000
- 5,000

Multiple Choice	*TB 05-60 How many blood analyses would he have to perform i...*

482. award: **0.25 points**

TB 05-61 How many blood analyses would he have to perform i...

How many blood analyses would he have to perform in order to make a profit of $15,000?

- 3,000
- 4,800
- 5,000
- 12,000
- → 3,750

Multiple Choice	*TB 05-61 How many blood analyses would he have to perform i...*

483. award: **0.25 points**

TB 05-62 The efficiency of a productive unit is 60%. The un...

The efficiency of a productive unit is 60%. The unit produces an average of 20 forklift trucks per day. Determine the effective capacity of the unit.

$$\text{Efficiency} = \frac{\text{actual output}}{\text{effective capacity}}$$

$$\text{Thus } 60\% = \frac{20 \text{ forklift trucks}}{\text{effective capacity}}$$

Solving for effective capacity yields 33.33 forklift trucks per day.

Short Answer	*TB 05-62 The efficiency of a productive unit is 60%. The un...*

484. award: **0.25 points**

TB 05-63 The utilization of a machine is 50%. The machine h...

The utilization of a machine is 50%. The machine has a design capacity of 70 units per hour and an effective capacity of 60 units per hour. Find the efficiency of the machine.

First, solve for actual output using the utilization formula.

$$\text{Utilization} = \frac{\text{actual output}}{\text{design capacity}} : 50\% = \frac{\text{actual output}}{70}$$

Thus actual output = 35 units per hour.
Using the efficiency formula:

$$\text{Efficiency} = \frac{\text{actual output}}{\text{effective capacity}} = \frac{35}{60} = 58.33\%$$

Short Answer *TB 05-63 The utilization of a machine is 50%. The machine h...*

485. award: **0.25 points**

TB 05-64 An investment proposal will have annual fixed cost...

An investment proposal will have annual fixed costs of $60,000, variable costs of $35 per unit of output, and revenue of $55 per unit of output.

(i) Determine the break-even quantity.
(ii) What volume of output will be necessary for an annual profit of $60,000?

FC = $60,000 per year
vc = $35 per unit
Rev - $55 per unit

$$Q_{BEP} = \frac{FC}{\text{Rev - vc}} = \frac{\$60{,}000}{\$55 - \$35} = 3{,}000 \text{ units}$$

$$Q_{BEP} = \frac{SP + FC}{\text{Rev - vc}} = \frac{\$60{,}000 + \$60{,}000}{\$55 - \$35} = 6{,}000 \text{ units}$$

Short Answer *TB 05-64 An investment proposal will have annual fixed cost...*

486. award: **0.25 points**

TB 05-65 A firm is considering three capacity alternatives:...

A firm is considering three capacity alternatives: A, B, and C. Alternative A would have an annual fixed cost of $100,000 and variable costs of $22 per unit. Alternative B would have annual fixed costs of $120,000 and variable costs of $20 per unit. Alternative C would have fixed costs of $80,000 and variable costs of $30 per unit. Revenue is expected to be $50 per unit.

(i) Which alternative has the lowest break-even quantity?
(ii) Which alternative will produce the highest profits for an annual output of 10,000 units?
(iii) Which alternative would require the lowest volume of output to generate an annual profit of $50,000?

	(i)	(ii)	(iii)
FC	$100,000	$120,000	$80,000
Vc	22	20	30
Rev	50	50	50

(i) $Q_{BEP} = \frac{FC}{Rev - vc}$ A : 3,572; B : 4,000; C : 4,000

(ii) Profit = Q(rev - vc) - FC. Q = 10,000. A: $180,000; B: $180,000; C: $120,000.

(iii) $Q = \frac{SP + FC}{Rev - vc}$. SP = $50,000. A : 5,358; B : 5,667; C. 6,500

Short Answer *TB 05-65 A firm is considering three capacity alternatives:...*

487. award: **0.25 points**

TB 05-66 A small business owner is contemplating the additi...

A small business owner is contemplating the addition of another product line. Capacity increases and equipment will result in an increase in annual fixed costs of $50,000. Variable costs will be $25 per unit.

(i) What unit selling price must the owner obtain to break-even on a volume of 2,500 units a year?
(ii) Because of market conditions, the owner feels a revenue of $47 is preferred to the value determined in part a. What volume of output will be required to achieve a profit of $16,000 using this revenue?

FC = $50,000 per year
Vc = $25 per unit

(i) $Q_{BEP} = \frac{FC}{Rev - vc}$ = 2,500 units. Solving for Rev : $45 per unit

(ii) Rev. = $47, specified profit = $16,000.
Profit = Q(Rev – vc) – FC. Solving for Q: 3,000 units per yr.

Short Answer *TB 05-66 A small business owner is contemplating the additi...*

Reference

Fixed costs:	$15,000.00
Variable costs:	$1.00 per unit
Revenue:	$1.60 per unit
Design capacity:	45,000 per unit
Effective capacity:	40,000 units per year
Anticipated output:	36,000 units per year

Section Break	*Reference*

488. award: **0.25 points**

TB 05-67 What is the anticipated utilization?
What is the anticipated utilization?

80%

Short Answer	*TB 05-67 What is the anticipated utilization?*

489. award: **0.25 points**

TB 05-68 What is the anticipated efficiency?
What is the anticipated efficiency?

90%

Short Answer	*TB 05-68 What is the anticipated efficiency?*

490. award: **0.25 points**

TB 05-69 What is the break-even quantity (produced and sold...
What is the break-even quantity (produced and sold)?

[25,000 units]

Short Answer	*TB 05-69 What is the break-even quantity (produced and sold...*

491. award: **0.25 points**

TB 05-70 What are total revenues for the break-even quantit...
What are total revenues for the break-even quantity?

$40,000

Short Answer	*TB 05-70 What are total revenues for the break-even quantit...*

492. award: **0.25 points**

TB 05-71 What are total costs for the break-even quantity?
What are total costs for the break-even quantity?

$40,000

Short Answer	*TB 05-71 What are total costs for the break-even quantity?*

493. award: **0.25 points**

TB 05-72 What quantity would be required for a profit of $2...
What quantity would be required for a profit of $2,000?

28,334 units

Short Answer	*TB 05-72 What quantity would be required for a profit of $2...*

494. award: **0.25 points**

TB 05-73 What profit (loss) would there be for a quantity o...
What profit (loss) would there be for a quantity of 27,000?

$1,200

Short Answer	*TB 05-73 What profit (loss) would there be for a quantity o...*

495. award: **0.25 points**

TB 05-74 What profit (loss) would there be for a quantity o...
What profit (loss) would there be for a quantity of 10,000?

$9,000 loss

Short Answer	*TB 05-74 What profit (loss) would there be for a quantity o...*

496. award: **0.25 points**

TB 05S-01 In decision theory, states of nature refer to poss...
In decision theory, states of nature refer to possible future conditions.

→ ○ True
○ False

True / False	*TB 05S-01 In decision theory, states of nature refer to poss...*

497. award: **0.25 points**

TB 05S-02 Do nothing is not usually considered in the list...
"Do nothing" is not usually considered in the list of possible alternatives for a decision.

- True
- → False

True / False	*TB 05S-02 Do nothing is not usually considered in the list...*

498. award: **0.25 points**

TB 05S-03 In order to use the expected value approach, one n...
In order to use the expected value approach, one needs to know the probabilities of future payoffs.

- True
- → False

True / False	*TB 05S-03 In order to use the expected value approach, one n...*

499. award: **0.25 points**

TB 05S-04 The probabilities assigned to each state of nature...
The probabilities assigned to each state of nature are taken from the appropriate probability distribution tables.

- True
- → False

True / False	*TB 05S-04 The probabilities assigned to each state of nature...*

500. award: **0.25 points**

TB 05S-05 The expected monetary value approach is most appro...
The expected monetary value approach is most appropriate when the decision-maker is risk-neutral.

- → True
- False

True / False	*TB 05S-05 The expected monetary value approach is most appro...*

501. award: **0.25 points**

TB 05S-06 Expected monetary value gives the actual payoff on...
Expected monetary value gives the actual payoff one can expect in a given situation involving risk.

- True
- → False

True / False	*TB 05S-06 Expected monetary value gives the actual payoff on...*

502. award: **0.25 points**

TB 05S-07 Expected monetary value gives the long-run average...
Expected monetary value gives the long-run average payoff if a large number of identical decisions could be made.

→ ○ True
○ False

True / False	*TB 05S-07 Expected monetary value gives the long-run average...*

503. award: **0.25 points**

TB 05S-08 The expected value approach is used for major, non...
The expected value approach is used for major, non-recurring decisions.

→ ○ True
○ False

True / False	*TB 05S-08 The expected value approach is used for major, non...*

504. award: **0.25 points**

TB 05S-09 An advantage of decision trees compared to payoff ...
An advantage of decision trees compared to payoff tables is that they permit us to analyze situations involving sequential decisions.

→ ○ True
○ False

True / False	*TB 05S-09 An advantage of decision trees compared to payoff ...*

505. award: **0.25 points**

TB 05S-10 Decision trees are useful when there is more than ...
Decision trees are useful when there is more than one decision variable.

→ ○ True
○ False

True / False	*TB 05S-10 Decision trees are useful when there is more than ...*

506. award: **0.25 points**

TB 05S-11 In a decision tree, square nodes represent chance ...
In a decision tree, square nodes represent chance events, and circular nodes denote decision points.

○ True
→ ○ False

True / False	*TB 05S-11 In a decision tree, square nodes represent chance ...*

507. award: **0.25 points**

TB 05S-12 Decision trees are analyzed from left to right.
Decision trees are analyzed from left to right.

- True
- → False

True / False	*TB 05S-12 Decision trees are analyzed from left to right.*

508. award: **0.25 points**

TB 05S-13 Influence diagrams contain more detailed informati...
Influence diagrams contain more detailed information than decision trees.

- True
- → False

True / False	*TB 05S-13 Influence diagrams contain more detailed informati...*

509. award: **0.25 points**

TB 05S-14 Influence diagrams represent complex situations wi...
Influence diagrams represent complex situations with many random variables, but only one decision variable.

- True
- → False

True / False	*TB 05S-14 Influence diagrams represent complex situations wi...*

510. award: **0.25 points**

TB 05S-15 In an influence diagram, the circles show chance e...
In an influence diagram, the circles show chance events.

- → True
- False

True / False	*TB 05S-15 In an influence diagram, the circles show chance e...*

511. award: **0.25 points**

TB 05S-16 The EVPI indicates an upper limit on the amount a ...
The EVPI indicates an upper limit on the amount a decision-maker should be willing to spend to obtain perfect information.

- → True
- False

True / False	*TB 05S-16 The EVPI indicates an upper limit on the amount a ...*

512. award: **0.25 points**

TB 05S-17 Graphical sensitivity analysis is limited to cases...
Graphical sensitivity analysis is limited to cases with no more than two alternatives.

- True
- → False

True / False	*TB 05S-17 Graphical sensitivity analysis is limited to cases...*

513. award: **0.25 points**

TB 05S-18 Graphical sensitivity analysis is used when the pa...
Graphical sensitivity analysis is used when the payoffs and probabilities of decision alternatives are uncertain.

- → True
- False

True / False	*TB 05S-18 Graphical sensitivity analysis is used when the pa...*

514. award: **0.25 points**

TB 05S-19 A tabular presentation that shows the outcome for ...
A tabular presentation that shows the outcome for each decision alternative under the various possible states of nature is called:

- → a payoff table
- a feasible region
- an isoquant table
- a decision tree
- a payback period matrix

Multiple Choice	*TB 05S-19 A tabular presentation that shows the outcome for ...*

515. award: **0.25 points**

TB 05S-20 A decision tree is:
A decision tree is:

- an algebraic representation of alternatives
- a behavioural representation of alternatives
- a matrix representation of alternatives
- → a graphical representation of alternatives
- a horticultural representation of alternatives

Multiple Choice	*TB 05S-20 A decision tree is:*

516. award: **0.25 points**

TB 05S-21 The difference between expected payoff under certa...
The difference between expected payoff under certainty and expected payoff under risk is the:

- expected monetary value
- → expected value of perfect information
- expected net present value
- expected rate of return
- none of the above

Multiple Choice	*TB 05S-21 The difference between expected payoff under certa...*

517. award: **0.25 points**

TB 05S-22 Which of the following is not true about influence...

Which of the following is not true about influence diagrams?

- They represent complex situations with many variables.
- → They show the alternatives at the decision nodes.
- Chance events are shown in circles.
- They are more concise than decision trees.
- All of these are true.

Multiple Choice	*TB 05S-22 Which of the following is not true about influence...*

518. award: **0.25 points**

TB 05S-23 A sensitivity analysis graph:

A sensitivity analysis graph:

- provides the exact values of the range of probability for the optimal alternative.
- is useful for a maximum of three alternatives.
- is useful when the probabilities of payoffs are known.
- → provides a visual indication of the range of probability for the best alternative
- All of these are correct.

Multiple Choice	*TB 05S-23 A sensitivity analysis graph:*

519. award: **0.25 points**

TB 05S-24 Testing how a problem solution reacts to changes i...

Testing how a problem solution reacts to changes in one or more of the model parameters is called:

- analysis of trade-offs
- → sensitivity analysis
- priority recognition
- analysis of variance
- decision analysis

Multiple Choice	*TB 05S-24 Testing how a problem solution reacts to changes i...*

**PV for profits ($000)*

	State of Nature	
	High	Low
Buy	$80*	0
Rent	70	30
Lease	30	50

*PV for profits ($000)

Section Break	**PV for profits ($000)*

520. award: **0.25 points**

TB 05S-25 If P(high) is .60, the choice for maximum expected...

If P(high) is .60, the choice for maximum expected value would be:

- buy
- lease
- → rent
- high
- low

Multiple Choice	*TB 05S-25 If P(high) is .60, the choice for maximum expected...*

**PV for profits ($000)*

	State of Nature	
	Yes	No
Small	\$10*	30
Medium	20	40
Med.-Large	30	45
Large	40	35
Ex-Large	60	20

*PV for profits ($000)

Section Break	**PV for profits ($000)*

521. award: **0.25 points**

TB 05S-26 If yes and no are equally likely, which alternativ...

If yes and no are equally likely, which alternative has the largest expected monetary value?

- small
- medium
- med.-large
- large
- → ex-large

Multiple Choice	*TB 05S-26 If yes and no are equally likely, which alternativ...*

**PV for profits ($000)*

	State of Nature		
	High	Med.	Low
A	\$20*	20	5
B	25	30	11
C	30	12	13
D	10	12	12
E	50	40	-28

*PV for profits ($000)

Section Break	**PV for profits ($000)*

522. award: **0.25 points**

TB 05S-27 With equally likely states of nature, the alternat...

With equally likely states of nature, the alternative that has the largest expected monetary value is:

- A
- → B
- C
- D
- E

Multiple Choice	*TB 05S-27 With equally likely states of nature, the alternat...*

A former politician, who is now the owner of an Ot...

A former politician, who is now the owner of an Ottawa consulting firm, is trying to decide whether to hire one, two, or three consultants. He estimates that profits next year (in thousands of dollars) will vary with demand for his consulting services as follows:

NUMBER OF CONSULTANTS	DEMAND		
	LOW	MEDIUM	HIGH
One	50	75	100
Two	0	100	100
Three	–100	70	300

Section Break	*A former politician, who is now the owner of an Ot...*

523. award: **0.25 points**

TB 05S-28 If he feels the chances of low, medium, and high d...

If he feels the chances of low, medium, and high demand are 50%, 20%, and 30%, respectively, what are the expected annual profits for the number of consultants he will decide to hire?

- $54,000
- $55,000
- → $70,000
- $80,000
- $135,000

Multiple Choice	*TB 05S-28 If he feels the chances of low, medium, and high d...*

524. award: **0.25 points**

TB 05S-29 If he feels the chances of low, medium, and high d...

If he feels the chances of low, medium, and high demand are 50%, 20%, and 30%, respectively, what is his expected value of perfect information?

- $54,000
- → $65,000
- $70,000
- $80,000
- $135,000

Multiple Choice	*TB 05S-29 If he feels the chances of low, medium, and high d...*

The operations manager for a local bus company wan...

The operations manager for a local bus company wants to decide whether he should purchase a small, medium, or large new bus for his company. He estimates that the annual profits (in $000) will vary depending upon whether passenger demand is low, moderate, or high, as follows:

Bus	DEMAND		
	LOW	MEDIUM	HIGH
Small	50	60	70
Medium	40	80	90
Large	20	50	120

Section Break	*The operations manager for a local bus company wan...*

award:
0.25 points

525.

TB 05S-30 If he feels the chances of low, moderate, and high...

If he feels the chances of low, moderate, and high demand are 30%, 30%, and 40%, respectively, what is the expected annual profit for the bus that he will decide to purchase?

- $15,000
- $61,000
- $69,000
- → $72,000
- $87,000

Multiple Choice	*TB 05S-30 If he feels the chances of low, moderate, and high...*

award:
0.25 points

526.

TB 05S-31 If he feels the chances of low, moderate, and high...

If he feels the chances of low, moderate, and high demand are 30%, 30%, and 40%, respectively, what is his expected value of perfect information?

- → $15,000
- $61,000
- $69,000
- $72,000
- $87,000

Multiple Choice	*TB 05S-31 If he feels the chances of low, moderate, and high...*

The operations manager for a well-drilling company...

The operations manager for a well-drilling company must recommend whether to build a new facility, expand his existing one, or do nothing. He estimates that long-run profits (in $000) will vary with the amount of precipitation (rainfall) as follows:

ALTERNATIVE	PRECIPITATION		
	LOW	NORMAL	HIGH
Do Nothing	-100	100	300
Expand	350	500	200
Build New	750	300	0

Section Break	*The operations manager for a well-drilling company...*

527. award: **0.25 points**

TB 05S-32 If he feels the chances of low, normal, and high p...
If he feels the chances of low, normal, and high precipitation are 30%, 20%, and 50%, respectively, what are expected long-run profits for the alternative he will select?

- $140,000
- $170,000
- $285,000
- → $305,000
- $475,000

Multiple Choice	*TB 05S-32 If he feels the chances of low, normal, and high p...*

528. award: **0.25 points**

TB 05S-33 If he feels the chances of low, normal, and high p...
If he feels the chances of low, normal, and high precipitation are 30%, 20%, and 50%, respectively, what is his expected value of perfect information?

- $140,000
- → $170,000
- $285,000
- $305,000
- $475,000

Multiple Choice	*TB 05S-33 If he feels the chances of low, normal, and high p...*

The local operations manager for the Internal Reve...
The local operations manager for the Internal Revenue Service must decide whether to hire one, two, or three temporary tax examiners for the upcoming tax season. She estimates that net revenues (in thousands of dollars) will vary with how well taxpayers comply with the new tax code just passed by Congress, as follows:

NUMBER OF EXAMINERS	COMPLIANCE		
	LOW	NORMAL	HIGH
One	50	50	50
Two	100	60	20
Three	150	70	-10

Section Break	*The local operations manager for the Internal Reve...*

529. award: **0.25 points**

TB 05S-34 If she feels the chances of low, medium, and high ...
If she feels the chances of low, medium, and high compliance are 20%, 30%, and 50%, respectively, what are the expected net revenues for the number of assistants she will decide to hire?

- $26,000
- $46,000
- $48,000
- → $50,000
- $76,000

Multiple Choice	*TB 05S-34 If she feels the chances of low, medium, and high ...*

530. award: **0.25 points**

TB 05S-35 If she feels the chances of low, medium, and high ...

If she feels the chances of low, medium, and high compliance are 20%, 30%, and 50%, respectively, what is her expected value of perfect information?

- $16,000
- → $26,000
- $46,000
- $48,000
- $50,000

Multiple Choice	*TB 05S-35 If she feels the chances of low, medium, and high ...*

The construction manager for Acme Construction, In...

The construction manager for Acme Construction, Inc. must decide whether to build single-family homes, apartments, or condominiums. He estimates annual profits (in $000) will vary with the population trend as follows:

Type	POPULATION TREND		
	Declining	Stable	Growing
Single Family	200	90	70
Apartments	70	170	90
Condos	-20	100	220

Section Break	*The construction manager for Acme Construction, In...*

531. award: **0.25 points**

TB 05S-36 If he feels the chances of declining, stable, and ...

If he feels the chances of declining, stable, and growing population trends are 40%, 50%, and 10%, respectively, which kind of houses will he decide to build?

- → single family
- apartments
- condos
- either single family or apartments
- either apartments or condos

Multiple Choice	*TB 05S-36 If he feels the chances of declining, stable, and ...*

532. award: **0.25 points**

TB 05S-37 If he feels the chances of declining, stable, and ...

If he feels the chances of declining, stable, and growing population trends are 40%, 50%, and 10%, respectively, what is his expected value of perfect information?

- $187,000
- $132,000
- $123,000
- $65,000
- → $55,000

Multiple Choice	*TB 05S-37 If he feels the chances of declining, stable, and ...*

The owner of Tastee Cookies needs to decide whethe...

The owner of Tastee Cookies needs to decide whether to lease a small, medium, or large new retail outlet. She estimates that monthly profits will vary with demand for her cookies as follows:

SIZE OF OUTLET	DEMAND	
	LOW	HIGH
Small	$1,000	1,000
Medium	500	2,500
Large	0	3,000

Section Break *The owner of Tastee Cookies needs to decide whethe...*

award:
533. 0.25 points

TB 05S-38 If she feels there is a 30% chance that demand wil...

If she feels there is a 30% chance that demand will be high, what are the expected monthly profits for the outlet she will decide to lease?

- $1,600
- → $1,100
- $1,000
- $900
- $500

Multiple Choice *TB 05S-38 If she feels there is a 30% chance that demand wil...*

award:
534. 0.25 points

TB 05S-39 If she feels there is a 30% chance that demand wil...

If she feels there is a 30% chance that demand will be high, what is her expected payoff?

- → $1,600
- $1,100
- $1,000
- $900
- $500

Multiple Choice *TB 05S-39 If she feels there is a 30% chance that demand wil...*

award:
535. 0.25 points

TB 05S-40 If she feels there is a 30% chance that demand wil...

If she feels there is a 30% chance that demand will be high, what is her expected value of perfect information?

- $1,600
- $1,100
- $1,000
- $900
- → $500

Multiple Choice *TB 05S-40 If she feels there is a 30% chance that demand wil...*

536. award: **0.25 points**

TB 05S-41 For what range of probability that demand will be ...
For what range of probability that demand will be high, will she decide to lease the small facility?

→ ○ 0 - .25
○ 0 - .33
○ .25 - .5
○ .33 - 1
○ .5 - 1

Multiple Choice	*TB 05S-41 For what range of probability that demand will be ...*

537. award: **0.25 points**

TB 05S-42 For what range of probability that demand will be ...
For what range of probability that demand will be high, will she decide to lease the medium facility?

○ 0 - .25
○ 0 - .33
→ ○ .25 - .5
○ .33 - 1
○ .5 - 1

Multiple Choice	*TB 05S-42 For what range of probability that demand will be ...*

538. award: **0.25 points**

TB 05S-43 For what range of probability that demand will be ...
For what range of probability that demand will be high, will she decide to lease the large facility?

○ 0 - .25
○ 0 - .33
○ .25 - .5
○ .33 - 1
→ ○ .5 - 1

Multiple Choice	*TB 05S-43 For what range of probability that demand will be ...*

The advertising manager for Roadside Restaurants, ...
The advertising manager for Roadside Restaurants, Inc. needs to decide whether to spend this month's budget for advertising on print media, television, or a mixture of the two. Her goal is to minimize the costs associated with reaching her audience. She estimates that the cost per thousand "hits" (readers or viewers) will vary depending upon the success of the new cable television network she plans to use, as follows:

Strategy	Cable Network	
	Successful	Failure
Print	$10	10
Mixed	4	14
Television	1	21

Section Break	*The advertising manager for Roadside Restaurants, ...*

539. award: **0.25 points**

TB 05S-44 If she feels that there is a 60% chance that the n...

If she feels that there is a 60% chance that the new cable network will be successful, what is her expected cost (per thousand "hits") for the strategy she will be selecting?

- $3.40
- $4.60
- → $8.00
- $9.00
- $10.00

Multiple Choice	*TB 05S-44 If she feels that there is a 60% chance that the n...*

540. award: **0.25 points**

TB 05S-45 If she feels that there is a 60% chance that the n...

If she feels that there is a 60% chance that the new cable network will be successful, what is her expected cost (per thousand "hits") under certainty?

- $3.40
- → $4.60
- $8.00
- $9.00
- $10.00

Multiple Choice	*TB 05S-45 If she feels that there is a 60% chance that the n...*

541. award: **0.25 points**

TB 05S-46 If she feels that there is a 60% chance that the n...

If she feels that there is a 60% chance that the new cable network will be successful, what is her expected value (per thousand "hits") of perfect information?

- → $3.40
- $4.60
- $8.00
- $9.00
- $10.00

Multiple Choice	*TB 05S-46 If she feels that there is a 60% chance that the n...*

542. award: **0.25 points**

TB 05S-47 For what range of probability that the new cable n...

For what range of probability that the new cable network will be successful will she select the print media strategy?

- → 0 - .4
- 0 - .55
- .4 - .7
- .55 - 1
- .7 - 1

Multiple Choice	*TB 05S-47 For what range of probability that the new cable n...*

543. award: **0.25 points**

TB 05S-48 For what range of probability that the new cable n...

For what range of probability that the new cable network will be successful will she select the mixed media strategy?

- 0 - .4
- 0 - .55
- → .4 - .7
- .55 - 1
- .7 - 1

Multiple Choice	*TB 05S-48 For what range of probability that the new cable n...*

544. award: **0.25 points**

TB 05S-49 For what range of probability that the new cable n...

For what range of probability that the new cable network will be successful will she select the television media strategy?

- 0 - .4
- 0 - .55
- .4 - .7
- .55 - 1
- → .7 - 1

Multiple Choice	*TB 05S-49 For what range of probability that the new cable n...*

The head of operations for a movie studio wants to...

The head of operations for a movie studio wants to determine which of two new scripts they should select for their next major production. (Due to budgeting constraints, only one new picture can be undertaken at this time.) She feels that script #1 has a 70 percent chance of earning about $10,000,000 over the long run, but a 30 percent chance of losing $2,000,000. If this movie is successful, then a sequel could also be produced, with an 80 percent chance of earning $5,000,000, but a 20 percent chance of losing $1,000,000. On the other hand, she feels that script #2 has a 60 percent chance of earning $12,000,000, but a 40 percent chance of losing $3,000,000. If successful, its sequel would have a 50 percent chance of earning $8,000,000, but a 50 percent chance of losing $4,000,000. Of course, in either case, if the original movie were a "flop", then no sequel would be produced.

Section Break	*The head of operations for a movie studio wants to...*

545. award: **0.25 points**

TB 05S-50 What would be the total payoff if script #1 was a ...

What would be the total payoff if script #1 was a success, but its sequel was not?

- $15,000,000
- $10,000,000
- → $9,000,000
- $5,000,000
- $-1,000,000

Multiple Choice	*TB 05S-50 What would be the total payoff if script #1 was a ...*

546. award: **0.25 points**

TB 05S-51 What is the probability that script #1 will be a s...
What is the probability that script #1 will be a success, but its sequel will not?

- .8
- .7
- .56
- .2
- → .14

Multiple Choice	*TB 05S-51 What is the probability that script #1 will be a s...*

547. award: **0.25 points**

TB 05S-52 What is the expected value of selecting script #1?
What is the expected value of selecting script #1?

- $15,000,000
- → $9,060,000
- $8,400,000
- $7,200,000
- $6,000,000

Multiple Choice	*TB 05S-52 What is the expected value of selecting script #1?*

548. award: **0.25 points**

TB 05S-53 What is the expected value of selecting script #2?
What is the expected value of selecting script #2?

- $15,000,000
- $9,060,000
- $8,400,000
- → $7,200,000
- $6,000,000

Multiple Choice	*TB 05S-53 What is the expected value of selecting script #2?*

549. award: **0.25 points**

TB 05S-54 What is the expected value for the optimum decisio...
What is the expected value for the optimum decision alternative?

- $15,000,000
- → $9,060,000
- $8,400,000
- $7,200,000
- $6,000,000

Multiple Choice	*TB 05S-54 What is the expected value for the optimum decisio...*

One local hospital has just enough space and funds...

One local hospital has just enough space and funds presently available to start either a cancer or heart research lab. If administration decides on the cancer lab, there is a 20 percent chance of getting $100,000 in outside funding from the American Cancer Society next year, and an 80 percent chance of getting nothing. If the cancer research lab is funded the first year, no additional outside funding will be available the second year. However, if it is not funded the first year, then management estimates the chances are 50 percent it will get $100,000 the following year, and 50 percent that it will get nothing again. If, however, the hospital's management decides to go with the heart lab, then there's a 50 percent chance of getting $50,000 in outside funding from the American Heart Association the first year, and a 50 percent chance of getting nothing. If the heart lab is funded the first year, management estimates a 40 percent chance of getting another $50,000, and a 60 percent chance of getting nothing additional the second year. If it is not funded the first year, then management estimates a 60 percent chance for getting $50,000, and a 40 percent chance of getting nothing in the following year. For both the cancer and heart research labs, no further possible funding is anticipated beyond the first two years.

Section Break	*One local hospital has just enough space and funds...*

award:
550. **0.25 points**

TB 05S-55 What would be the total payoff if the heart lab we...

What would be the total payoff if the heart lab were funded in both the first and second years?

- $100,000
- $60,000
- → $50,000
- $40,000
- $20,000

Multiple Choice	*TB 05S-55 What would be the total payoff if the heart lab we...*

award:
551. **0.25 points**

TB 05S-56 What is the probability that the heart lab will be...

What is the probability that the heart lab will be funded in both the first and second years?

- .4
- .3
- → .2
- .1
- 0

Multiple Choice	*TB 05S-56 What is the probability that the heart lab will be...*

award:
552. **0.25 points**

TB 05S-57 What is the expected value for the decision altern...

What is the expected value for the decision alternative to select the cancer lab?

- $100,000
- → $60,000
- $50,000
- $40,000
- $20,000

Multiple Choice	*TB 05S-57 What is the expected value for the decision altern...*

553. award: **0.25 points**

TB 05S-58 What is the expected value for the decision altern...

What is the expected value for the decision alternative to select the heart lab?

- $100,000
- $60,000
- → $50,000
- $40,000
- $20,000

Multiple Choice	*TB 05S-58 What is the expected value for the decision altern...*

554. award: **0.25 points**

TB 05S-59 What is the expected value for the optimum decisio...

What is the expected value for the optimum decision alternative?

- $100,000
- → $60,000
- $50,000
- $40,000
- $20,000

Multiple Choice	*TB 05S-59 What is the expected value for the optimum decisio...*

Two professors at a nearby university want to co-a...

Two professors at a nearby university want to co-author a new textbook in either economics or statistics. They feel that if they write an economics book, they have a 50 percent chance of placing it with a major publisher, and it should ultimately sell about 40,000 copies. If they can't get a major publisher to take it, then they feel they have an 80 percent chance of placing it with a smaller publisher, with ultimate sales of 30,000 copies. On the other hand, if they write a statistics book, they feel they have a 40 percent chance of placing it with a major publisher, and it should result in ultimate sales of about 50,000 copies. If they can't get a major publisher to take it, they feel they have a 50 percent chance of placing it with a smaller publisher, with ultimate sales of 35,000 copies.

Section Break	*Two professors at a nearby university want to co-a...*

555. award: **0.25 points**

TB 05S-60 What is the probability that the economics book wo...

What is the probability that the economics book would wind up being placed with a smaller publisher?

- .8
- .5
- → .4
- .2
- .1

Multiple Choice	*TB 05S-60 What is the probability that the economics book wo...*

556. award: **0.25 points**

TB 05S-61 What is the probability that the statistics book w...
What is the probability that the statistics book would wind up being placed with a smaller publisher?

- .6
- .5
- .4
- → .3
- 0

Multiple Choice	*TB 05S-61 What is the probability that the statistics book w...*

557. award: **0.25 points**

TB 05S-62 What is the expected value for the decision altern...
What is the expected value for the decision alternative to write the economics book?

- 50,000 copies
- 40,000 copies
- → 32,000 copies
- 30,500 copies
- 10,500 copies

Multiple Choice	*TB 05S-62 What is the expected value for the decision altern...*

558. award: **0.25 points**

TB 05S-63 What is the expected value for the decision altern...
What is the expected value for the decision alternative to write the statistics book?

- 50,000 copies
- 40,000 copies
- 32,000 copies
- → 30,500 copies
- 10,500 copies

Multiple Choice	*TB 05S-63 What is the expected value for the decision altern...*

559. award: **0.25 points**

TB 05S-64 What is the expected value for the optimum decisio...
What is the expected value for the optimum decision alternative?

- 50,000 copies
- 40,000 copies
- → 32,000 copies
- 30,500 copies
- 10,500 copies

Multiple Choice	*TB 05S-64 What is the expected value for the optimum decisio...*

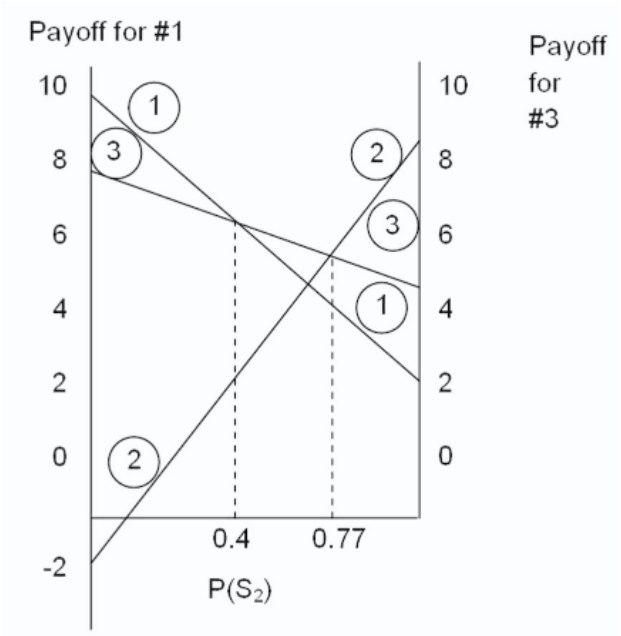
560. award: **0.25 points**

TB 05S-65 A manager has developed a payoff table that indica...

A manager has developed a payoff table that indicates the profits associated with a set of alternatives under two possible states of nature. Answer the following questions.

(i) Determine the expected value of perfect information if P(S2) = .40.
(ii) Determine the range of P(S2) for which each alternative would be optimal.

Alt.	S1	S2
1	10	2
2	-2	8
3	8	5



(i) Under certainty, the max. payoff is .6(10) + .4(8) = 9.2
(ii) Regret matrix is:

EVPI for Alt. 1 is: .60 (10) + .40 (2) = 6.8
EVPI for Alt. 2 is: .60 (-2) + .40 (8) = 2.
EVPI for Alt. 3 is: .60 (8) + .40 (5) = 6.8
Therefore, Alternative 1 or 3 would be selected under risk, with an EVPI of 2.4.

(ii) Refer to the diagram, above.
Equations:

1: 10 - 8P
2: -2 + 10P
3: 8 - 3P

Ranges:

#1 is opt. from P(S2) = 0 to < .40.
#3 is opt. from > .77 to 1.00
#2 is opt. from > .40 to < .77

Short Answer *TB 05S-65 A manager has developed a payoff table that indica...*

561. award: **0.25 points**

TB 05S-66 A manager's staff has compiled the information bel...

A manager's staff has compiled the information below which pertains to four capacity alternatives. Values in the matrix are present value in thousands of dollars.

		1	2	3	4
Alternative	A	50	30	20	40
	B	40	30	30	35
	C	30	30	35	30
	D	20	25	35	30

If states of nature are equally likely and an expected value criterion of maximization is used, which alternative would be chosen?

A: $35; B: $33.75; C: $31.25; D: $27.50. Hence, choose A.

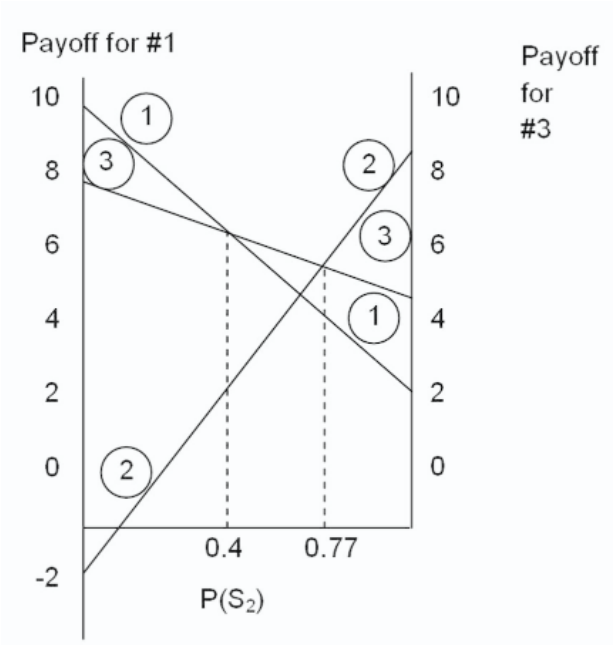
Short Answer *TB 05S-66 A manager's staff has compiled the information bel...*

562. award: **0.25 points**

TB 05S-67 A manager has learned that annual profits from fou...

A manager has learned that annual profits from four alternatives being considered for solving a capacity problem are projected to be $15,000 for A, $30,000 for B, $45,000 for C, and $60,000 for D if state of nature 1 occurs; and $60,000 for A, $80,000 for B, $90,000 for C, and $35,000 for D if state of nature 2 occurs.

(i) If P(State of Nature 1) is .40, what alternative has the highest expected monetary value?
(ii) Determine the range of P(S2) for which each alternative would be optimal.



Alternative	1	2
A	$15	60
B	30	80
C	45	90
D	60	35

(i) Max EMV is C ($72)
(ii) Refer to the diagram, above.

Equations:

A: 15 + 45P
B: 30 + 50P
C: 45 + 45P
D: 60 – 25P

Ranges:

D is optimal from 0 < .214
C is optimal from > .214 to 1.00

Short Answer *TB 05S-67 A manager has learned that annual profits from fou...*

563. award: **0.25 points**

TB 05S-68 Given the payoff matrix below, answer the followin...

Given the payoff matrix below, answer the following questions:

Alternative	State of Nature			
	#1	#2	#3	#4
A	1	0	1	6
B	1	5	4	2
C	3	2	2	3

(a) If somehow you find out for certain that state of nature #4 is going to occur, which alternative will you select?
(b) If you feel that P(#1) = .4, P(#2) = .3, P(#3) = .2, and P(#4) = .1,

(i) What is your expected payoff under certainty?
(ii) Which alternative has the highest expected monetary value?
(iii) What is your expected value of perfect information?

(a) A = 6

(bi) EPC = 4.1
(bii) B; EV = 2.9
(biii) EVPI = 1.2

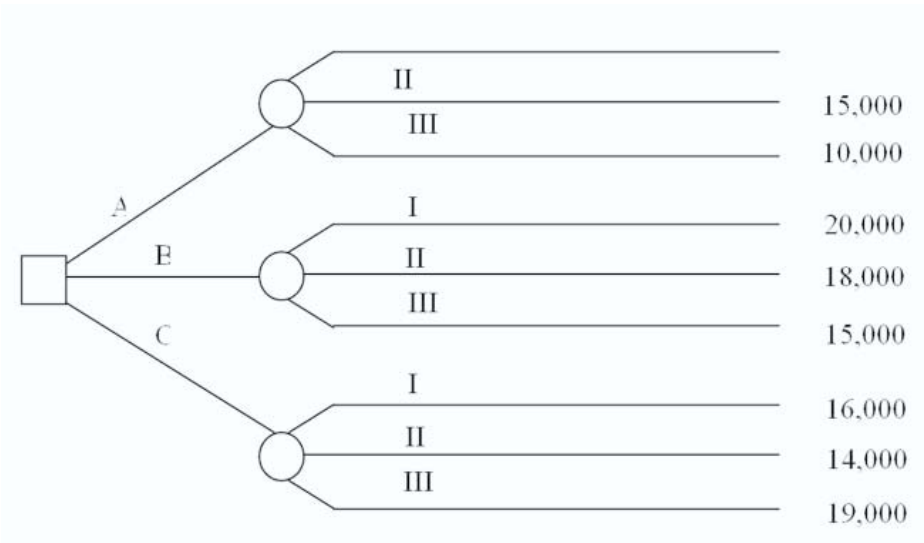
Short Answer *TB 05S-68 Given the payoff matrix below, answer the followin...*

564. award: **0.25 points**

TB 05S-69 A manager is quite concerned about the recent dete...

A manager is quite concerned about the recent deterioration of a section of the roof on a building that houses her firm's computer operations. According to her assistant there are three options which merit consideration: A, B, and C. Moreover, there are three possible future conditions that must be included in the analysis: I, which has a probability of occurrence of .5; II, which has a probability of .3; and III, which has a probability of .2.
If condition I materializes, A will cost $12,000, B will cost $20,000, and C will cost $16,000. If condition II materializes, the costs will be $15,000 for A, $18,000 for B, and $14,000 for C. If condition III materializes, the costs will be $10,000 for A, $15,000 for B, and $19,000 for C.

(i) Draw a decision tree for this problem.
(ii) Using expected monetary value, which alternative should be chosen?



EMV: A = $12,500, B = $18,400, C = $16,000 so choose B

Short Answer *TB 05S-69 A manager is quite concerned about the recent dete...*

565. award: **0.25 points**

TB 06-01 Process design is required only when new products ...
Process design is required only when new products or services are planned.

- True
- → False

True / False	*TB 06-01 Process design is required only when new products ...*

566. award: **0.25 points**

TB 06-02 The first step in process design is to decide whet...
The first step in process design is to decide whether to make or buy a product or service.

- → True
- False

True / False	*TB 06-02 The first step in process design is to decide whet...*

567. award: **0.25 points**

TB 06-03 Intermittent processing can take the form of batch...
Intermittent processing can take the form of batch processing or a job shop.

- → True
- False

True / False	*TB 06-03 Intermittent processing can take the form of batch...*

568. award: **0.25 points**

TB 06-04 Repetitive processing systems are typically used t...
Repetitive processing systems are typically used to produce goods for specific customer orders rather than for finished product inventory.

- True
- → False

True / False	*TB 06-04 Repetitive processing systems are typically used t...*

569. award: **0.25 points**

TB 06-05 Continuous processing is employed when a customize...
Continuous processing is employed when a customized output is required.

- True
- → False

True / False	*TB 06-05 Continuous processing is employed when a customize...*

570. award: **0.25 points**

TB 06-06 As a general rule, continuous processing systems p...
As a general rule, continuous processing systems produce products for a high volume of standardized output.

→ ○ True
○ False

True / False	*TB 06-06 As a general rule, continuous processing systems p...*

571. award: **0.25 points**

TB 06-07 Repetitive production processes produce a high vol...
Repetitive production processes produce a high volume of standardized products or services.

→ ○ True
○ False

True / False	*TB 06-07 Repetitive production processes produce a high vol...*

572. award: **0.25 points**

TB 06-08 A job shop processing system generally requires le...
A job shop processing system generally requires less skilled workers than a continuous processing system.

○ True
→ ○ False

True / False	*TB 06-08 A job shop processing system generally requires le...*

573. award: **0.25 points**

TB 06-09 A job shop processing system tends to utilize high...
A job shop processing system tends to utilize highly flexible general-purpose equipment.

→ ○ True
○ False

True / False	*TB 06-09 A job shop processing system tends to utilize high...*

574. award: **0.25 points**

TB 06-10 In general, scheduling jobs for job shop systems i...
In general, scheduling jobs for job shop systems is a greater challenge than with continuous processes because job shops handle customised products with varying due dates.

→ ○ True
○ False

True / False	*TB 06-10 In general, scheduling jobs for job shop systems i...*

575. award: **0.25 points**

TB 06-11 Automation is applicable only to products, not ser...
Automation is applicable only to products, not services.

- True
- → False

True / False	*TB 06-11 Automation is applicable only to products, not ser...*

576. award: **0.25 points**

TB 06-12 A robot consists of three parts: a power supply, a...
A robot consists of three parts: a power supply, a controller, and a mechanical arm.

- → True
- False

True / False	*TB 06-12 A robot consists of three parts: a power supply, a...*

577. award: **0.25 points**

TB 06-13 Numerically controlled (N/C) machines and some rob...
Numerically controlled (N/C) machines and some robots are examples of programmable automation.

- → True
- False

True / False	*TB 06-13 Numerically controlled (N/C) machines and some rob...*

578. award: **0.25 points**

TB 06-14 Programmable automation requires less changeover t...
Programmable automation requires less changeover time than flexible automation.

- True
- → False

True / False	*TB 06-14 Programmable automation requires less changeover t...*

579. award: **0.25 points**

TB 06-15 Flexible manufacturing systems (FMS) are intended ...
Flexible manufacturing systems (FMS) are intended to automate routine work tasks in high volume, low variety mass production industries such as the auto industry.

- True
- → False

True / False	*TB 06-15 Flexible manufacturing systems (FMS) are intended ...*

580. award: **0.25 points**

TB 06-16 Service process design differs from manufacturing ...
Service process design differs from manufacturing in that it outlines the flow of the customer or something belonging to the customer.

→ ○ True
○ False

True / False	*TB 06-16 Service process design differs from manufacturing ...*

581. award: **0.25 points**

TB 06-17 Production processes are only redesigned at the ti...
Production processes are only redesigned at the time of introducing new products.

○ True
→ ○ False

True / False	*TB 06-17 Production processes are only redesigned at the ti...*

582. award: **0.25 points**

TB 06-18 A cafeteria line would be an example of a process ...
A cafeteria line would be an example of a process layout.

○ True
→ ○ False

True / False	*TB 06-18 A cafeteria line would be an example of a process ...*

583. award: **0.25 points**

TB 06-19 Product layouts can more easily adapt to variation...
Product layouts can more easily adapt to variations in product requirements than process layouts can.

○ True
→ ○ False

True / False	*TB 06-19 Product layouts can more easily adapt to variation...*

584. award: **0.25 points**

TB 06-20 Process (functional) layouts allow greater flexibi...
Process (functional) layouts allow greater flexibility in processing than product (line) layouts.

→ ○ True
○ False

True / False	*TB 06-20 Process (functional) layouts allow greater flexibi...*

585. award: **0.25 points**

TB 06-21 A possible disadvantage of a product layout is an ...
A possible disadvantage of a product layout is an inflexible response to changes in product mix.

→ ○ True
○ False

True / False	*TB 06-21 A possible disadvantage of a product layout is an ...*

586. award: **0.25 points**

TB 06-22 Product layouts achieve high utilization of labour...
Product layouts achieve high utilization of labour and equipment.

→ ○ True
○ False

True / False	*TB 06-22 Product layouts achieve high utilization of labour...*

587. award: **0.25 points**

TB 06-23 Product layouts are often used in service environm...
Product layouts are often used in service environments.

○ True
→ ○ False

True / False	*TB 06-23 Product layouts are often used in service environm...*

588. award: **0.25 points**

TB 06-24 A disadvantage of a product layout can be high in-...
A disadvantage of a product layout can be high in-process inventory costs.

○ True
→ ○ False

True / False	*TB 06-24 A disadvantage of a product layout can be high in-...*

589. award: **0.25 points**

TB 06-25 Process layouts arrange production resources accor...
Process layouts arrange production resources according to similarity of function.

→ ○ True
○ False

True / False	*TB 06-25 Process layouts arrange production resources accor...*

590. award: **0.25 points**

TB 06-26 Process layouts are common in non-manufacturing en...
Process layouts are common in non-manufacturing environments.

→ ○ True
○ False

True / False	*TB 06-26 Process layouts are common in non-manufacturing en...*

591. award: **0.25 points**

TB 06-27 A process layout is more susceptible to shutdowns ...
A process layout is more susceptible to shutdowns caused by equipment breakdowns than a product layout.

○ True
→ ○ False

True / False	*TB 06-27 A process layout is more susceptible to shutdowns ...*

592. award: **0.25 points**

TB 06-28 Process layouts tend to have lower in-process inve...
Process layouts tend to have lower in-process inventories, and higher equipment utilization rates than product layouts.

○ True
→ ○ False

True / False	*TB 06-28 Process layouts tend to have lower in-process inve...*

593. award: **0.25 points**

TB 06-29 Cellular layouts are like miniature versions of pr...
Cellular layouts are like miniature versions of product layouts.

→ ○ True
○ False

True / False	*TB 06-29 Cellular layouts are like miniature versions of pr...*

594. award: **0.25 points**

TB 06-30 In cellular layouts, machines and equipment are gr...
In cellular layouts, machines and equipment are grouped according to their function, for instance, all grinders are grouped into a cell.

○ True
→ ○ False

True / False	*TB 06-30 In cellular layouts, machines and equipment are gr...*

595. award: **0.25 points**

TB 06-31 Some of the benefits of cellular layouts are less ...
Some of the benefits of cellular layouts are less material handling and reduced setup time.

→ ○ True
○ False

True / False	*TB 06-31 Some of the benefits of cellular layouts are less ...*

596. award: **0.25 points**

TB 06-32 Group technology is closely connected to manufactu...
Group technology is closely connected to manufacturing cells.

→ ○ True
○ False

True / False	*TB 06-32 Group technology is closely connected to manufactu...*

597. award: **0.25 points**

TB 06-33 In group technology, items may be grouped accordin...
In group technology, items may be grouped according to design characteristics.

→ ○ True
○ False

True / False	*TB 06-33 In group technology, items may be grouped accordin...*

598. award: **0.25 points**

TB 06-34 Process layouts tend to have low in-process invent...
Process layouts tend to have low in-process inventories.

○ True
→ ○ False

True / False	*TB 06-34 Process layouts tend to have low in-process invent...*

599. award: **0.25 points**

TB 06-35 Cellular layouts consist of a large number of comp...
Cellular layouts consist of a large number of computer-controlled machines that produce dissimilar parts.

○ True
→ ○ False

True / False	*TB 06-35 Cellular layouts consist of a large number of comp...*

600. award: **0.25 points**

TB 06-36 The design of factories and the design of warehous...
The design of factories and the design of warehouses are based on a similar set of factors.

- True
- → False

True / False	*TB 06-36 The design of factories and the design of warehous...*

601. award: **0.25 points**

TB 06-37 In designing the layout of retail facilities the f...
In designing the layout of retail facilities the focus is cost minimization.

- True
- → False

True / False	*TB 06-37 In designing the layout of retail facilities the f...*

602. award: **0.25 points**

TB 06-38 Line balancing is an important aspect in the desig...
Line balancing is an important aspect in the design of a process layout.

- True
- → False

True / False	*TB 06-38 Line balancing is an important aspect in the desig...*

603. award: **0.25 points**

TB 06-39 The goal of line balancing is to assign tasks to w...
The goal of line balancing is to assign tasks to workstations in such a way that the workstations have approximately equal time requirements.

- → True
- False

True / False	*TB 06-39 The goal of line balancing is to assign tasks to w...*

604. award: **0.25 points**

TB 06-40 An assembly line that has a percentage idle time o...
An assembly line that has a percentage idle time of zero means the line is perfectly balanced.

- → True
- False

True / False	*TB 06-40 An assembly line that has a percentage idle time o...*

605. award: **0.25 points**

TB 06-41 The goal of line balancing is to obtain a fair a...
The goal of line balancing is to obtain a "fair" allocation of idle time to each work station.

- True
- → False

True / False	*TB 06-41 The goal of line balancing is to obtain a fair a...*

606. award: **0.25 points**

TB 06-42 Cycle time is the maximum time allowed at each wor...
Cycle time is the maximum time allowed at each workstation to complete its assigned tasks on each unit before it moves on.

- → True
- False

True / False	*TB 06-42 Cycle time is the maximum time allowed at each wor...*

607. award: **0.25 points**

TB 06-43 For a production line, daily capacity can be deter...
For a production line, daily capacity can be determined by dividing the daily operating time by the line's cycle time.

- → True
- False

True / False	*TB 06-43 For a production line, daily capacity can be deter...*

608. award: **0.25 points**

TB 06-44 The theoretical minimum number of workstations for...
The theoretical minimum number of workstations for a production line is a function of the sum of task times and the cycle time.

- → True
- False

True / False	*TB 06-44 The theoretical minimum number of workstations for...*

609. award: **0.25 points**

TB 06-45 None of the techniques for line balancing guarante...
None of the techniques for line balancing guarantee an optimal solution.

- → True
- False

True / False	*TB 06-45 None of the techniques for line balancing guarante...*

610. award: **0.25 points**

TB 06-46 Heuristic approaches to line balancing guarantee a...
Heuristic approaches to line balancing guarantee an optimal solution.

- True
- → False

True / False	*TB 06-46 Heuristic approaches to line balancing guarantee a...*

611. award: **0.25 points**

TB 06-47 An advantage of a U-shaped production line is that...
An advantage of a U-shaped production line is that it facilitates teamwork and flexibility in work assignments.

- → True
- False

True / False	*TB 06-47 An advantage of a U-shaped production line is that...*

612. award: **0.25 points**

TB 06-48 Balance delay is another name for the percentage...
"Balance delay" is another name for the percentage of idle time in a product layout.

- → True
- False

True / False	*TB 06-48 Balance delay is another name for the percentage...*

613. award: **0.25 points**

TB 06-49 Balance delay is another name for the percentage...
"Balance delay" is another name for the percentage of idle time in a process layout.

- True
- → False

True / False	*TB 06-49 Balance delay is another name for the percentage...*

614. award: **0.25 points**

TB 06-50 The closeness ratings approach to design process l...
The closeness ratings approach to design process layouts focuses on one main objective, minimizing the total transportation cost.

- True
- → False

True / False	*TB 06-50 The closeness ratings approach to design process l...*

615. award: **0.25 points**

TB 06-51 Which of the following is not true about process d...
Which of the following is not true about process design?

- Process design refers to how production of goods or services will be done.
- → Process design occurs only when new products or services are planned.
- Process design has strategic significance.
- Process design has major implications for layout of facilities.
- Process design can be revisited occurs periodically due to technological changes.

Multiple Choice	*TB 06-51 Which of the following is not true about process d...*

616. award: **0.25 points**

TB 06-52 Which of the following is a factor considered in m...
Which of the following is a factor considered in make-or-buy decisions?

- available capacity
- core capabilities
- nature of demand
- secrecy of technology
- → all of the choices are factors considered

Multiple Choice	*TB 06-52 Which of the following is a factor considered in m...*

617. award: **0.25 points**

TB 06-53 In which type of operations process are you likely...
In which type of operations process are you likely to see products or services produced in low to moderate volumes, with some degree of standardization, and moderate flexibility of the processing equipment used?

- a project
- a job shop
- repetitive production
- → batch processing
- none of the choices

Multiple Choice	*TB 06-53 In which type of operations process are you likely...*

618. award: **0.25 points**

TB 06-54 In which type of processing system would sugar ref...
In which type of processing system would sugar refining be done?

- Job Shop
- Batch
- Assembly
- → Continuous
- Repetitive

Multiple Choice	*TB 06-54 In which type of processing system would sugar ref...*

619. award: **0.25 points**

TB 06-55 The type of processing system which is used for hi...
The type of processing system which is used for highly standardized products is:

→ ○ continuous
○ intermittent
○ job-shop
○ batch
○ unit

Multiple Choice	*TB 06-55 The type of processing system which is used for hi...*

620. award: **0.25 points**

TB 06-56 Which type of processing system tends to produce t...
Which type of processing system tends to produce the most product variety?

○ Assembly
→ ○ Job-Shop
○ Batch
○ Continuous
○ Repetitive

Multiple Choice	*TB 06-56 Which type of processing system tends to produce t...*

621. award: **0.25 points**

TB 06-57 The substitution of human labour with machinery th...
The substitution of human labour with machinery that has sensing and control devices is best described by the term:

→ ○ automation
○ loss of jobs
○ computer-aided manufacturing
○ computer-integrated manufacturing
○ flexible manufacturing system

Multiple Choice	*TB 06-57 The substitution of human labour with machinery th...*

622. award: **0.25 points**

TB 06-58 The advantages of automation include:I. Reduced ou...
The advantages of automation include:

I. Reduced output variability
II. Reduced variable costs
III. Machines don't strike or file grievances.
IV. Machines are much more flexible than human labour.

○ I and IV only
○ II and III only
→ ○ I, II, and III only
○ I and III only
○ II and IV only

Multiple Choice	*TB 06-58 The advantages of automation include:I. Reduced ou...*

623. award: **0.25 points**

TB 06-59 Which of the following is not generally considered...
Which of the following is not generally considered to be a kind of automation?

- fixed automation
- programmable automation
- flexible automation
- → variable automation
- all of the choices are kinds of automation

Multiple Choice	*TB 06-59 Which of the following is not generally considered...*

624. award: **0.25 points**

TB 06-60 Which type of automation is least suited for a wid...
Which type of automation is least suited for a wide variety of products?

- → fixed automation
- programmable automation
- flexible automation
- flexible manufacturing systems
- all choices are equally suited for a wide variety of products

Multiple Choice	*TB 06-60 Which type of automation is least suited for a wid...*

625. award: **0.25 points**

TB 06-61 Which type of automation provides the lowest chang...
Which type of automation provides the lowest changeover time?

- fixed automation
- programmable automation
- → flexible automation
- flexible manufacturing systems
- all choices have comparable changeover times

Multiple Choice	*TB 06-61 Which type of automation provides the lowest chang...*

626. award: **0.25 points**

TB 06-62 N/C machines are best used in cases with all of th...
N/C machines are best used in cases with all of the following characteristics EXCEPT:

- mistakes are costly
- → changes in design are infrequent
- parts are processed in small batches
- close tolerances are required
- all of the choices are characteristics

Multiple Choice	*TB 06-62 N/C machines are best used in cases with all of th...*

627. award: **0.25 points**

TB 06-63 Which of the following is an example of programmab...
Which of the following is an example of programmable automation?

I. N/C machines
II. Robots
III. Computer-integrated manufacturing

- I only
- II only
- III only
- I and II only
- → I, II and III

Multiple Choice	*TB 06-63 Which of the following is an example of programmab...*

628. award: **0.25 points**

TB 06-64 CIM stands for which of the following?
"CIM" stands for which of the following?

- customer-integrated manufacturing
- consumer-information manufacturing
- → computer-integrated manufacturing
- computer-integrated monitoring
- constantly-integrated manufacturing

Multiple Choice	*TB 06-64 CIM stands for which of the following?*

629. award: **0.25 points**

TB 06-65 A group of machining centres including supervisory...
A group of machining centres including supervisory computer control, automatic material handling, and possibly robots is called:

- automation
- a manufacturing cell
- computer-aided manufacturing
- computer-integrated manufacturing
- → a flexible manufacturing system

Multiple Choice	*TB 06-65 A group of machining centres including supervisory...*

630. award: **0.25 points**

TB 06-66 The linking of a broad range of manufacturing and ...
The linking of a broad range of manufacturing and other activities through an integrated computer system is referred to as:

- automation
- computer-aided design (CAD)
- computer-aided manufacturing (CAM)
- → computer-integrated manufacturing (CIM)
- a flexible manufacturing system (FMS)

Multiple Choice	*TB 06-66 The linking of a broad range of manufacturing and ...*

631. award: **0.25 points**

TB 06-67 The benefits of flexible manufacturing systems (FM...
The benefits of flexible manufacturing systems (FMS) include all of the following EXCEPT:

- reduced labour costs
- higher flexibility than fixed automation
- quick changeover from part to part
- → shorter planning and development times
- more consistent quality

Multiple Choice	*TB 06-67 The benefits of flexible manufacturing systems (FM...*

632. award: **0.25 points**

TB 06-68 The overall goals of CIM include all but which of ...
The overall goals of CIM include all but which of the following?

- to achieve rapid response to customer orders
- to allow rapid production
- to reduce indirect labour costs
- → to increase product variety
- to achieve rapid response to product changes

Multiple Choice	*TB 06-68 The overall goals of CIM include all but which of ...*

633. award: **0.25 points**

TB 06-69 The incremental approach to process design involve...
The incremental approach to process design involves which of the following?

I. Identifying process boundaries (inputs and outputs) and the level of detail required
II. Following the normal flow of materials through the transformation process
III. Identifying the required activities and resources
IV. Identifying the sequence of activities and resources

- I and IV only
- II and IV only
- I, II and III only
- II, III, and IV only
- → I, II, III, and IV only

Multiple Choice	*TB 06-69 The incremental approach to process design involve...*

634. award: **0.25 points**

TB 06-70 The Integrated Definition (IDEF) method:I. is a hi...
The Integrated Definition (IDEF) method:

I. is a hierarchical top-down approach
II. used for process design
III. relies on brainstorming rather than recollection of past actual processes

- I and II only
- I and III only
- III only
- II and III only
- → I, II and III

Multiple Choice	*TB 06-70 The Integrated Definition (IDEF) method:I. is a hi...*

635. award: **0.25 points**

TB 06-71 In a process flow diagram, the diamond shape shows...
In a process flow diagram, the diamond shape shows which of the following?

- Events of interest
- → Decision points
- Possible failure points
- Inventory delays

Multiple Choice	*TB 06-71 In a process flow diagram, the diamond shape shows...*

636. award: **0.25 points**

TB 06-72 Which of the following is a suggestion to improve ...
Which of the following is a suggestion to improve customer perception in services?

- Start the service positively as customers remember the beginning more
- If the service is pleasurable, combine the segments
- If the service is painful, divide it into segments
- → Let customers control part or all of the process
- All of the choices are correct

Multiple Choice	*TB 06-72 Which of the following is a suggestion to improve ...*

637. award: **0.25 points**

TB 06-73 Which of the following is not a type of layout?
Which of the following is not a type of layout?

- Product (line) layouts
- Process (functional) layouts
- Cellular layouts
- → Robotic layouts
- Warehouse layouts

Multiple Choice	*TB 06-73 Which of the following is not a type of layout?*

638. award: **0.25 points**

TB 06-74 Which one of the following is a type of product la...
Which one of the following is a type of product layout?

- → assembly line
- job shop
- batch process
- functional layout
- retail layout

Multiple Choice	*TB 06-74 Which one of the following is a type of product la...*

639. award: **0.25 points**

TB 06-75 The type of layout which is used to achieve a smoo...

The type of layout which is used to achieve a smooth and rapid flow of large volumes of output is:

- process
- → product
- intermittent
- cellular
- continuous

Multiple Choice	*TB 06-75 The type of layout which is used to achieve a smoo...*

640. award: **0.25 points**

TB 06-76 Which one of the following is not common to produc...

Which one of the following is not common to product layouts?

- a high rate of output
- specialization of labour
- low unit costs
- → ability to adjust to changes in demand
- all are common

Multiple Choice	*TB 06-76 Which one of the following is not common to produc...*

641. award: **0.25 points**

TB 06-77 Which of the following is not used to avoid costly...

Which of the following is not used to avoid costly shutdowns in product layouts?

- preventive maintenance
- inventories of spare parts
- having repair personnel available
- → having idle stand-by plants activated during shutdowns
- all are used

Multiple Choice	*TB 06-77 Which of the following is not used to avoid costly...*

642. award: **0.25 points**

TB 06-78 The type of layout which features departments or o...

The type of layout which features departments or other functional groupings in which similar activities are performed is:

- → process
- product
- intermittent
- cellular
- continuous

Multiple Choice	*TB 06-78 The type of layout which features departments or o...*

643. award: **0.25 points**

TB 06-79 Which of the following is not usually true about p...

Which of the following is not usually true about process layouts?

- they involve frequent adjustments to equipment
- there is a discontinuous work flow
- variable-path material-handling equipment is used
- → highly specialized equipment is used
- workers are usually skilled or semi-skilled

Multiple Choice	*TB 06-79 Which of the following is not usually true about p...*

644. award: **0.25 points**

TB 06-80 Which of the following is not true about process l...

Which of the following is not true about process layouts when they are compared to product layouts?

- lower maintenance costs
- → easier routing and scheduling
- less investment in spare parts
- less specialized equipment
- all of the choices are true

Multiple Choice	*TB 06-80 Which of the following is not true about process l...*

645. award: **0.25 points**

TB 06-81 Which of the following is true about process layou...

Which of the following is true about process layouts when they are compared to product layouts?

- lower in-process inventories
- lower unit handling costs
- lower variety of processing requirements
- → less vulnerable to shut down because of mechanical failure
- lower skill levels among labour force

Multiple Choice	*TB 06-81 Which of the following is true about process layou...*

646. award: **0.25 points**

TB 06-82 A machine shop is an example of which type of layo...

A machine shop is an example of which type of layout?

- product layout
- manufacturing cell layout
- warehouse layout
- standardized layout
- → process layout

Multiple Choice	*TB 06-82 A machine shop is an example of which type of layo...*

647. award: **0.25 points**

TB 06-83 The grouping of equipment by the operations needed...

The grouping of equipment by the operations needed to perform similar work for part families is best described as a:

- product layout
- → cellular layout
- functional layout
- standardized layout
- process layout

Multiple Choice	*TB 06-83 The grouping of equipment by the operations needed...*

648. award: **0.25 points**

TB 06-84 Which term is most closely associated with cellula...

Which term is most closely associated with cellular layout?

- → part families
- assembly line
- robotics
- CIM
- IDEF

Multiple Choice	*TB 06-84 Which term is most closely associated with cellula...*

649. award: **0.25 points**

TB 06-85 Which of the following is not a benefit of cellula...

Which of the following is not a benefit of cellular layout?

- faster throughput time
- less material handling
- → more work-in-process inventory
- reduced setup time
- all of the choices are benefits

Multiple Choice	*TB 06-85 Which of the following is not a benefit of cellula...*

650. award: **0.25 points**

TB 06-86 Which term is most closely associated with group t...

Which term is most closely associated with group technology?

- numerical control
- robots
- → manufacturing characteristics
- CIM
- IDEF

Multiple Choice	*TB 06-86 Which term is most closely associated with group t...*

651. award: **0.25 points**

TB 06-87 Which of the following most closely describes how ...
Which of the following most closely describes how parts are arranged into part families in group technology?

- primarily by design characteristics
- primarily by manufacturing characteristics
- → by both design and manufacturing characteristics
- primarily by functional characteristics
- by both design and functional characteristics

Multiple Choice	*TB 06-87 Which of the following most closely describes how ...*

652. award: **0.25 points**

TB 06-88 An advantage of a U-shaped production line is:
An advantage of a U-shaped production line is:

- It is more compact.
- It permits better communication among employees.
- It facilitates teamwork among workers.
- It increases flexibility of work assignments.
- → all of the choices are advantages

Multiple Choice	*TB 06-88 An advantage of a U-shaped production line is:*

653. award: **0.25 points**

TB 06-89 Methods used to analyze data for conversion to gro...
Methods used to analyze data for conversion to group technology include all of the following EXCEPT:

- → statistical process analysis
- visual inspection
- examination of design and production data
- production flow sequence and routing analysis
- all of these

Multiple Choice	*TB 06-89 Methods used to analyze data for conversion to gro...*

654. award: **0.25 points**

TB 06-90 Which one of the following is not considered an im...
Which one of the following is not considered an important factor in retail layout design?

- → cost minimization and product flow
- presence of customers
- customer flow
- opportunity to influence sales
- all are important factors

Multiple Choice	*TB 06-90 Which one of the following is not considered an im...*

655. award: **0.25 points**

TB 06-91 In a product layout, the process of assigning task...

In a product layout, the process of assigning tasks to workstations in such a way that the work stations have approximately equal time requirements is referred to as:

- process balancing
- task allocation
- → line balancing
- work allocation
- station balancing

Multiple Choice	*TB 06-91 In a product layout, the process of assigning task...*

656. award: **0.25 points**

TB 06-92 The cycle time (CT) necessary in a product layout ...

The cycle time (CT) necessary in a product layout is determined by:

- Number of workstations/sum of task times
- → Operating time per day/desired output per day
- Number of workstations multiplied by the sum of task times
- Operating time per day multiplied by desired output per day
- Sum of task times/number of workstations

Multiple Choice	*TB 06-92 The cycle time (CT) necessary in a product layout ...*

657. award: **0.25 points**

TB 06-93 A production line is to be designed for a job with...

A production line is to be designed for a job with three tasks. The task times are 0.3 minutes, 1.4 minutes, and 0.7 minutes. If the necessary cycle time is 1.2 minutes per unit, what is the theoretical minimum number of workstations?

- 1.2
- → 2.0
- 2.4
- 3.4
- none of these

Multiple Choice	*TB 06-93 A production line is to be designed for a job with...*

658. award: **0.25 points**

TB 06-94 A production line is to be designed for a job with...

A production line is to be designed for a job with three tasks. The task times are 0.3 minutes, 1.4 minutes, and 0.7 minutes. If the necessary cycle time is 1.0 minutes per unit, what is the actual minimum number of workstations possible?

- 1
- 2
- → 3
- 4
- none of these

Multiple Choice	*TB 06-94 A production line is to be designed for a job with...*

659. award: **0.25 points**

TB 06-95 If a line is balanced with 90 percent efficiency, ...
If a line is balanced with 90 percent efficiency, the "balance delay" would be:

→ ○ 10 percent
○ 90 percent
○ 100 percent
○ unknown, because balance delay isn't related to efficiency
○ none of the choices

Multiple Choice	*TB 06-95 If a line is balanced with 90 percent efficiency, ...*

660. award: **0.25 points**

TB 06-96 Which of the following is not an approach that com...
Which of the following is not an approach that companies use to balance a line of production?

○ line balancing heuristics
○ parallel workstations
○ dynamic line balancing (Cross train workers)
→ ○ companies use all of these.

Multiple Choice	*TB 06-96 Which of the following is not an approach that com...*

661. award: **0.25 points**

TB 06-97 The main issue in the design of process layouts co...
The main issue in the design of process layouts concerns the relative positioning of:

○ workstations
○ processing components
→ ○ departments involved
○ entrances, loading docks, etc.
○ manufacturing cells

Multiple Choice	*TB 06-97 The main issue in the design of process layouts co...*

662. award: **0.25 points**

TB 06-98 Which of the following is not true about design of...
Which of the following is not true about design of process layouts?

○ Design Process layouts are influenced by physical factors such as location of entrances.
○ Ideally the physical structure is designed around the process layout.
→ ○ There is a standardized approach to develop process layouts.
○ The main issue in design of process layouts is the relative positioning of departments.
○ Multilevel structures pose special problems for process layout planners.

Multiple Choice	*TB 06-98 Which of the following is not true about design of...*

663. award: **0.25 points**

TB 06-99 Heuristic rules are usually applied when:
Heuristic rules are usually applied when:

- an optimum solution is necessary
- a computer program isn't available
- a problem has a small number of alternative solutions
- → a problem has a large number of alternative solutions
- other approaches have failed

Multiple Choice	*TB 06-99 Heuristic rules are usually applied when:*

664. award: **0.25 points**

TB 06-100 Which of the following is not an information requi...
Which of the following is not an information requirement for the design of a process layout?

- a list of departments or work centres
- current and projected work flows between the departments of work centres
- the distance between locations
- a list of special considerations
- → a list of product cycle times

Multiple Choice	*TB 06-100 Which of the following is not an information requi...*

665. award: **0.25 points**

TB 06-101 A common goal in designing process layouts is:
A common goal in designing process layouts is:

- minimizing the number of workers
- minimizing idle time
- → minimizing transportation costs
- maximizing work-station productive time
- maximizing transportation distances

Multiple Choice	*TB 06-101 A common goal in designing process layouts is:*

666. award: **0.25 points**

TB 06-102 Using the method developed by Richard Muther, whic...
Using the method developed by Richard Muther, which closeness rating reflects the undesirability of having two departments located near each other?

- A
- E
- R
- U
- → X

Multiple Choice	*TB 06-102 Using the method developed by Richard Muther, whic...*

667. award: **0.25 points**

TB 06-103 Using the method developed by Richard Muther, whic...

Using the method developed by Richard Muther, which closeness rating reflects the highest importance for two departments being close to each other?

→ A
E
I
U
X

Multiple Choice	*TB 06-103 Using the method developed by Richard Muther, whic...*

668. award: **0.25 points**

TB 06-104 For line balancing, cycle time is computed as:

For line balancing, cycle time is computed as:

→ daily operating time divided by the desired output
desired output divided by the daily operating time
daily operating time divided by the product of the desired output and the sum of job times
the product of desired output and the sum of job times divided by daily operating time
1.00 minus station time

Multiple Choice	*TB 06-104 For line balancing, cycle time is computed as:*

A company is designing a product layout for a new ...

A company is designing a product layout for a new product. It plans to use this production line eight hours a day in order to meet projected demand of 480 units per day. The tasks necessary to produce this product:

TASK	PREDECESSOR	TIME(seconds)
u	-	30
v	u	30
w	u	6
x	w	12
y	x	54
z	v,y	30

Section Break	*A company is designing a product layout for a new ...*

669. award: **0.25 points**

TB 06-105 Without regard to demand, what is the minimum poss...

Without regard to demand, what is the minimum possible cycle time (in seconds) for this situation?

162
72
→ 54
12
60

Multiple Choice	*TB 06-105 Without regard to demand, what is the minimum poss...*

670. award: **0.25 points**

TB 06-106 If the company desires that output rate equal dema...

If the company desires that output rate equal demand, what is the desired cycle time (in seconds)?

- 162
- 72
- 54
- 12
- → 60

Multiple Choice	*TB 06-106 If the company desires that output rate equal dema...*

671. award: **0.25 points**

TB 06-107 If the company desires that output rate equal dema...

If the company desires that output rate equal demand, what is the minimum number of workstations needed?

- → 3
- 4
- 5
- 6
- 7

Multiple Choice	*TB 06-107 If the company desires that output rate equal dema...*

672. award: **0.25 points**

TB 06-108 If the company desires that output rate equal dema...

If the company desires that output rate equal demand, what would be the efficiency of this line with the minimum number of workstations?

- 100%
- 92.5%
- 75%
- 87.5%
- → 90%

Multiple Choice	*TB 06-108 If the company desires that output rate equal dema...*

673. award: **0.25 points**

TB 06-109 If the company desires that output rate equal dema...

If the company desires that output rate equal demand, what is the last task performed at the second workstation in the balance which uses the minimum number of workstations?

- u
- v
- w
- x
- → y

Multiple Choice	*TB 06-109 If the company desires that output rate equal dema...*

QRS Corp. is designing a product layout for a new ...
QRS Corp. is designing a product layout for a new product. They plan to use this production line ten hours a day in order to meet forecasted demand of 900 units per day. The following table describes the tasks necessary to produce this product:

TASK	PREDECESSOR	TIME(seconds)
A	—	34
B	A	20
C	B	10
D	B	16
E	C	10
F	D, E	24
G	F	38

Section Break	*QRS Corp. is designing a product layout for a new ...*

674. award: **0.25 points**

TB 06-110 Without considering forecasted demand, what is the...
Without considering forecasted demand, what is the minimum possible cycle time for this production line?

- 10 seconds
- 20 seconds
- 34 seconds
- → 38 seconds
- 152 seconds

Multiple Choice	*TB 06-110 Without considering forecasted demand, what is the...*

675. award: **0.25 points**

TB 06-111 For output to equal forecasted demand, what should...
For output to equal forecasted demand, what should be the actual cycle time for this production?

- 32 seconds
- 38 seconds
- → 40 seconds
- 76 seconds
- 152 seconds

Multiple Choice	*TB 06-111 For output to equal forecasted demand, what should...*

676. award: **0.25 points**

TB 06-112 For output to equal forecasted demand, what is the...
For output to equal forecasted demand, what is the minimum number of workstations needed?

- 1
- 3
- 3.75
- → 4
- 5

Multiple Choice	*TB 06-112 For output to equal forecasted demand, what is the...*

677. award: **0.25 points**

TB 06-113 For output to equal forecasted demand, what will b...

For output to equal forecasted demand, what will be the efficiency of the production line that uses the least number of workstations?

- 81%
- 90%
- → 95%
- 85%
- 100%

Multiple Choice	*TB 06-113 For output to equal forecasted demand, what will b...*

678. award: **0.25 points**

TB 06-114 For output to equal forecasted demand, what will b...

For output to equal forecasted demand, what will be the second task performed at the second workstation of the production line that uses the fewest number of stations?

- A
- B
- → C
- D
- E

Multiple Choice	*TB 06-114 For output to equal forecasted demand, what will b...*

The maker of the world-famous Widget needs to desi...

The maker of the world-famous Widget needs to design a product layout for a new product, the amazing "Thatsit". The company plans to use this new production line eight hours a day in order to meet projected demand of 1,440 units per day. The following table describes the tasks involved in the production of a "Thatsit".

TASK	PREDECESSOR	TIME(seconds)
U	—	4
V	U	14
W	V	12
X	V	10
Y	W	6
Z	X, Y	8

Section Break	*The maker of the world-famous Widget needs to desi...*

679. award: **0.25 points**

TB 06-115 Without considering projected demands, what is the...

Without considering projected demands, what is the minimum possible cycle time for this production line?

- 54 seconds
- → 14 seconds
- 12 seconds
- 10 seconds
- 4 seconds

Multiple Choice	*TB 06-115 Without considering projected demands, what is the...*

680. award: **0.25 points**

TB 06-116 For output to equal projected demand, what should ...
For output to equal projected demand, what should be the actual cycle time for this production line?

- 54 seconds
- 27 seconds
- → 20 seconds
- 18 seconds
- 14 seconds

Multiple Choice	*TB 06-116 For output to equal projected demand, what should ...*

681. award: **0.25 points**

TB 06-117 For output to equal projected demand, what is the ...
For output to equal projected demand, what is the minimum number of workstations needed?

- 6
- 4.5
- → 3
- 2.7
- 2

Multiple Choice	*TB 06-117 For output to equal projected demand, what is the ...*

682. award: **0.25 points**

TB 06-118 For output to equal projected demand, what will be...
For output to equal projected demand, what will be the efficiency of the production line that uses the minimum number of workstations?

- → 90%
- 95%
- 97%
- 99%
- 100%

Multiple Choice	*TB 06-118 For output to equal projected demand, what will be...*

683. award: **0.25 points**

TB 06-119 For output to equal projected demand, what will be...
For output to equal projected demand, what will be the first task performed at the third workstation of the production line which uses the minimum number of workstations?

- U
- V
- W
- → X
- Y

Multiple Choice	*TB 06-119 For output to equal projected demand, what will be...*

A company needs to rebalance a product layout for ...
A company needs to rebalance a product layout for producing a redesigned product. They plan to use the assembly line 6 hours in order to meet projected demand of 2,160 license plates each day. The following table describes the tasks involved in the production of this product:

TASK	PREDECESSOR	TIME(seconds)
A	—	3
B	—	4
C	A, B	5
D	—	7
E	C, D	9

Section Break	*A company needs to rebalance a product layout for ...*

684. award: **0.25 points**

TB 06-120 Without regard to projected demand, what is the mi...
Without regard to projected demand, what is the minimum possible cycle time for this assembly line?

- 0 seconds
- 3 seconds
- → 9 seconds
- 10 seconds
- 28 seconds

Multiple Choice	*TB 06-120 Without regard to projected demand, what is the mi...*

685. award: **0.25 points**

TB 06-121 For output to equal projected demand, what should ...
For output to equal projected demand, what should be the actual cycle time for this assembly line?

- 0 seconds
- 3 seconds
- 9 seconds
- → 10 seconds
- 28 seconds

Multiple Choice	*TB 06-121 For output to equal projected demand, what should ...*

686. award: **0.25 points**

TB 06-122 For output to equal projected demand, what is the ...
For output to equal projected demand, what is the minimum number of workstations needed?

- 2
- 2.8
- → 3
- 4
- 5

Multiple Choice	*TB 06-122 For output to equal projected demand, what is the ...*

687. award: **0.25 points**

TB 06-123 For output to equal projected demand, what will be...

For output to equal projected demand, what will be the efficiency of the assembly line that uses the minimum number of workstations?

- 0.0%
- 6.7%
- 70.0%
- → 93.3%
- 100%

Multiple Choice	*TB 06-123 For output to equal projected demand, what will be...*

688. award: **0.25 points**

TB 06-124 For output to equal projected demand, what will be...

For output to equal projected demand, what will be the idle time at the second workstation of the assembly line that uses the minimum number of workstations?

- 0 seconds
- → 1 second
- 2 seconds
- 3 seconds
- 5 seconds

Multiple Choice	*TB 06-124 For output to equal projected demand, what will be...*

A company needs to locate three departments (X, Y,...

A company needs to locate three departments (X, Y, and Z) in the three areas (I, II, and III) of a new facility. They want to minimize interdepartmental transportation costs, which are expected to be $.50 per load per metre moved. An analyst has prepared the following distances and flow matrices:

DISTANCES (metres)

From/To	I	II	III
I	–	10	20
II		–	10
III			–

FLOW's (loads per week)

From/To	X	Y	Z
X	–	60	90
Y	40	–	160
Z	110	140	–

Section Break	*A company needs to locate three departments (X, Y,...*

689. award: **0.25 points**

TB 06-125 What is the distance (in metres) from area III to ...

What is the distance (in metres) from area III to area I in this new facility?

- 0
- 10
- → 20
- 30
- 40

Multiple Choice	*TB 06-125 What is the distance (in metres) from area III to ...*

690. award: **0.25 points**

TB 06-126 What is the total flow (loads per week) between de...

What is the total flow (loads per week) between department Y and department Z?

- 140
- 160
- 200
- 250
- → 300

Multiple Choice	*TB 06-126 What is the total flow (loads per week) between de...*

691. award: **0.25 points**

TB 06-127 If departments X, Y, and Z were to be located in a...

If departments X, Y, and Z were to be located in areas I, II, and III, respectively, what would be the total distance (in metres) loads would be moved each week?

- 4,000
- 4,500
- 7,000
- → 8,000
- 9,000.

Multiple Choice	*TB 06-127 If departments X, Y, and Z were to be located in a...*

692. award: **0.25 points**

TB 06-128 What are total weekly costs for the least costly p...

What are total weekly costs for the least costly process layout?

- $2,800
- $3,150
- → $3,500
- $4,000
- $4,500

Multiple Choice	*TB 06-128 What are total weekly costs for the least costly p...*

693. award: **0.25 points**

TB 06-129 How many least costly process layouts are there?

How many least costly process layouts are there?

- 1
- → 2
- 3
- 4
- 5

Multiple Choice	*TB 06-129 How many least costly process layouts are there?*

A company needs to locate three departments (X, Y,...

A company needs to locate three departments (X, Y, and Z) in the three areas (1, 2, and 3) of a new facility. They want to minimize interdepartmental transportation costs, which are expected to be $.50 per load metre moved. An analyst has prepared the following flow and distance matrices:

DISTANCES (metres)

From/To	1	2	3
1	–	10	20
2		–	10
3			–

FLOW's (loads per week)

From/To	X	Y	Z
X	–	0	80
Y	30	–	150
Z	100	130	–

Section Break	*A company needs to locate three departments (X, Y,...*

694. award: **0.25 points**

TB 06-130 What is the distance (in metres) from area 3 to ar...

What is the distance (in metres) from area 3 to area 1 of this new facility?

- 0
- 10
- → 20
- 30
- 40

Multiple Choice	*TB 06-130 What is the distance (in metres) from area 3 to ar...*

695. award: **0.25 points**

TB 06-131 What is the total flow (loads per week) between de...

What is the total flow (loads per week) between department Y and department Z?

- 130
- 150
- 180
- 230
- → 280

Multiple Choice	*TB 06-131 What is the total flow (loads per week) between de...*

696. award: **0.25 points**

TB 06-132 If the company were to locate departments X, Y, an...

If the company were to locate departments X, Y, and Z in areas 1, 2, and 3, respectively, what would be the total distance (in metres) loads would be moved each week?

- 3,100
- 3,600
- 6,200
- → 6,700
- 8,200

Multiple Choice	*TB 06-132 If the company were to locate departments X, Y, an...*

697. award: **0.25 points**

TB 06-133 What is the layout that will minimize the total di...

What is the layout that will minimize the total distance loads will be moved each week?

- X in 1; Y in 2; Z in 3
- → X in 1; Z in 2; Y in 3
- Y in 1; X in 2; Z in 3
- Z in 1; X in 2; Y in 3
- Z in 1; Y in 2; X in 3

Multiple Choice	*TB 06-133 What is the layout that will minimize the total di...*

698. award: **0.25 points**

TB 06-134 What are total weekly costs for an optimum layout?

What are total weekly costs for an optimum layout?

- → $2,600
- $3,600
- $6,200
- $7,200
- $8,200

Multiple Choice	*TB 06-134 What are total weekly costs for an optimum layout?*

A consultant needs to locate four departments-wait...

A consultant needs to locate four departments-waiting room (W), checkup room (c), laboratory (L), and exercise room (E)-in four areas (I, II, III, IV) of a new facility. He wants to minimize interdepartmental transportation costs associated with the nurses escorting patients, which he expects to be $.10 per patient per metre. He has prepared the following distance and flow matrices:

DISTANCES (metres)

From/To	I	II	III	IV
I	–	5	10	20
II		–	5	10
III			–	5
IV				–

FLOW's (loads per week)

From/To	W	C	L	E
W	–	80	50	0
C	100	–	0	5
L	30	20	–	38
E	18	5	20	–

Section Break	*A consultant needs to locate four departments-wait...*

699. award: **0.25 points**

TB 06-135 What is the distance (in metres) from area IV to a...

What is the distance (in metres) from area IV to area II in this new facility?

- 0
- 5
- → 10
- 15
- 20

Multiple Choice	*TB 06-135 What is the distance (in metres) from area IV to a...*

700. award: **0.25 points**

TB 06-136 What is the total flow (patients per week) between...

What is the total flow (patients per week) between department W and department L?

- 70
- → 80
- 88
- 130
- 148

Multiple Choice	*TB 06-136 What is the total flow (patients per week) between...*

701. award: **0.25 points**

TB 06-137 How many different process layouts are possible fo...

How many different process layouts are possible for this new facility?

- 4
- 6
- 16
- → 24
- 120

Multiple Choice	*TB 06-137 How many different process layouts are possible fo...*

702. award: **0.25 points**

TB 06-138 If the consultant were to locate departments W, C,...

If the consultant were to locate departments W, C, L, and E in areas I, II, III, and IV, respectively, what would be total weekly costs?

- $114
- $217
- → $255
- $322
- $366

Multiple Choice	*TB 06-138 If the consultant were to locate departments W, C,...*

703. award: **0.25 points**

TB 06-139 What are total weekly costs for the least costly p...

What are total weekly costs for the least costly process layout?

- $114
- → $217
- $255
- $322
- $366

Multiple Choice	*TB 06-139 What are total weekly costs for the least costly p...*

704. award: **0.25 points**

TB 06-140 Management wants to design an assembly line that w...

Management wants to design an assembly line that will turn out 800 adult games per day. There will be eight working hours in each day. The industrial engineering staff has assembled the information below:

Task	Time (min.)	Immediate Predecessor
a	.2	none
b	.2	a
c	.4	none
d	.1	none
e	.3	c,d
f	.2	b,e
g	.1	none
h	.2	f,g
I	.6	h

Determine the maximum and minimum cycle times.

(i) Determine the optimum cycle time.
(ii) What is the minimum number of stations needed?
(iii) Draw the precedence network.
(iv) Assign tasks to stations in order of most following tasks first.

(i) Maximum cycle time is 2.3 minutes; minimum cycle time is .6 minutes.

(ii)
$$CT = \frac{\text{operating time}}{\text{desired output}} = \frac{480 \text{ minutes per day}}{800 \text{ units per day}} = \frac{.6 \text{ minutes per}}{\text{cycle}}$$

$$N = \frac{\text{desired output}}{\text{operating time}} = \frac{800\,(2.3)}{480} = 3.83, \text{ which becomes } 4$$

(iii)

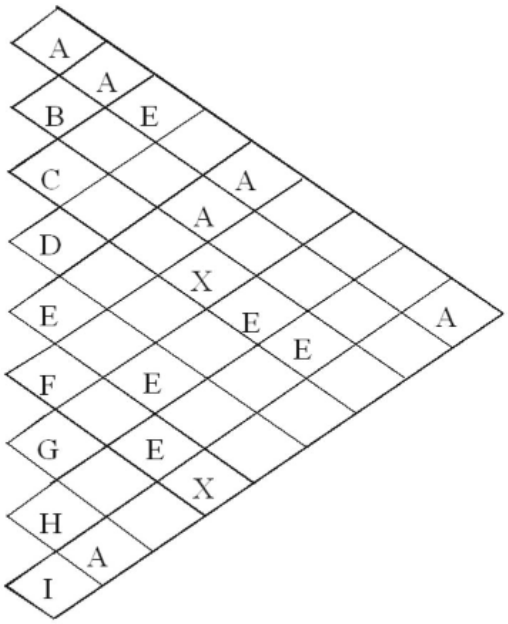
(iv)

Workstation	Assign Task	Idle Time
1	C, D, G	.0
2	A, E	.1
3	B, F, H	.0
4	I	.0
Or:		
1	A, C	.0
2	D, B, E	.0
3	F, G, H	.1
4	I	.0

Short Answer *TB 06-140 Management wants to design an assembly line that w...*

705. award: **0.25 points**

TB 06-141 Given the information above, assign de...



Given the information above, assign departments to locations in a 3 x 3 grid, with department F in the lower right hand corner.

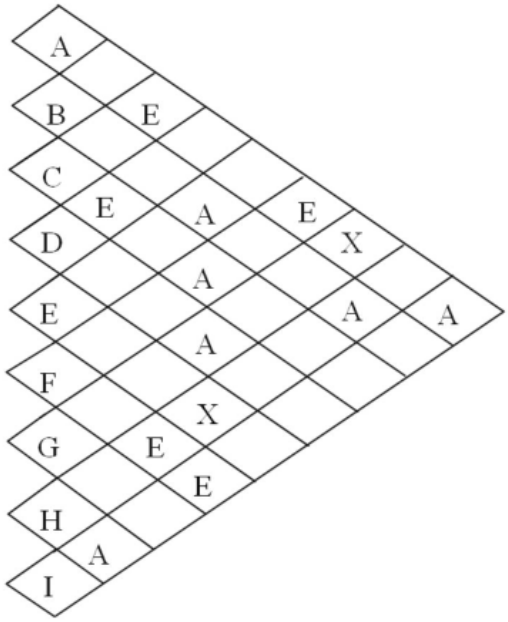
Example solution:

C	G	E
H	A	B
I	D	F

Short Answer *TB 06-141 Given the information above, assign de...*

706. award: **0.25 points**

TB 06-142 Given the information above, assign th...



Given the information above, assign the departments A through I to locations in a 3 x 3 grid, with department E fixed in the lower right-hand corner.

Example solution:

H	I	A
HB	F	C
G	D	E

Short Answer *TB 06-142 Given the information above, assign th...*

707. award: **0.25 points**

TB 06-143 Determine the minimum number of workstations neede...
Determine the minimum number of workstations needed for this situation:

Operating time is 450 minutes per day.
Desired output is 80 units per day.
The sum of task times is 56 minutes.

$$N = \frac{\text{Desired output x Sum of task times}}{\text{Operating time per day}} = \frac{80 \text{ units x } 56 \text{ minutes per cycle}}{450 \text{ minutes per day}}$$

= 9.96. Therefore, 10 stations are needed.

Short Answer *TB 06-143 Determine the minimum number of workstations neede...*

708. award: **0.25 points**

TB 06-144 Given the following data: Determine the...

Given the following data:

Station	Station time (min)
1	4.2
2	4.7
3	4.4
4	4.8

Cycle time = 5.1 min

Determine the percentage idle time.

(i) Compute the station idle time and the total idle time per cycle:

Station	Station time	Idle Time
1	4.2	.9
2	4.7	.4
3	4.4	.7
4	4.8	.3
		2.3

(ii)

$$\text{Percent idle time} = \frac{\text{Idle time per cycle}}{\text{N x cycle time}}$$

$$= \frac{2.3\,\text{min.}}{4 \times 5.1\,\text{min.}} = .1127, \text{or } 11.27\%$$

Short Answer *TB 06-144 Given the following data: Determine the...*

709. award: **0.25 points**

TB 06-145 Given the following process layout data for locati...

Given the following process layout data for locating six departments in the six areas shown:

Department:	I	II	III	IV	V	VI
I	-	E	X	X	E	A
II		-	E	E	A	A
III			-	A	E	X
IV				-	E	X
V					-	
VI						-

FACILITY

1	2	3
4	5	6

What process layout(s) satisfy(ies) these closeness ratings?

Any layout with I and VI at one end of the facility, III and IV at the other end, and II and V in the middle

I	V	III
VI	II	IV

Short Answer *TB 06-145 Given the following process layout data for locati...*

Given the following line balance data:

Given the following line balance data:

TASK	PREDECESSOR	TIME(seconds)
T	—	15
U	t	14
V	t	7
W	u	6
X	v	8
Y	w, x	10
Z	y	21

Section Break *Given the following line balance data:*

710. award: **0.25 points**

TB 06-146 What is the minimum possible cycle time?

What is the minimum possible cycle time?

21 seconds

Short Answer *TB 06-146 What is the minimum possible cycle time?*

711. award: **0.25 points**

TB 06-147 What is the maximum sensible cycle time?
What is the maximum sensible cycle time?

81 seconds

Short Answer *TB 06-147 What is the maximum sensible cycle time?*

712. award: **0.25 points**

TB 06-148 What is the appropriate cycle time for eight hours...
What is the appropriate cycle time for eight hours of operating time per day and a desired output rate of 960 units per day?

30 seconds

Short Answer *TB 06-148 What is the appropriate cycle time for eight hours...*

713. award: **0.25 points**

TB 06-149 For eight hours of operating time per day and a de...
For eight hours of operating time per day and a desired output rate of 960 units per day, what is the minimum number of stations needed to achieve the appropriate cycle time?

Three

Short Answer *TB 06-149 For eight hours of operating time per day and a de...*

714. award: **0.25 points**

TB 06-150 For eight hours of operating time per day and a de...
For eight hours of operating time per day and a desired output rate of 960 units per day, what balance (if any) will yield the minimum number of stations?

Station #1: t, v, x; Station #2: u, w, y; Station #3: z

Short Answer *TB 06-150 For eight hours of operating time per day and a de...*

715. award: **0.25 points**

TB 06-151 For eight hours of operating time per day and a de...
For eight hours of operating time per day and a desired output rate of 960 units per day, what is the percentage of idle time for the balance which uses the minimum number of stations?

10%

Short Answer *TB 06-151 For eight hours of operating time per day and a de...*

716. award: **0.25 points**

TB 06-152 For eight hours of operating time per day and a de...

For eight hours of operating time per day and a desired output rate of 960 units per day, what is the efficiency for the balance which uses the minimum number of stations?

90%

Short Answer	*TB 06-152 For eight hours of operating time per day and a de...*

Given the following process layout data for locati...

Given the following process layout data for locating four departments (A, B, C, and D) in four areas (1, 2, 3, and 4):

From/To	1	2	3	4
1	–	50	100	150
2		–	50	100
3			–	50
4				–

From/To	A	B	C	D
A	–	10	40	50
B	30	–	10	70
C	60	10	–	40
D	30	50	20	–

Section Break	*Given the following process layout data for locati...*

717. award: **0.25 points**

TB 06-153 What is the distance from area 3 to area 1?

What is the distance from area 3 to area 1?

100 feet

Short Answer	*TB 06-153 What is the distance from area 3 to area 1?*

718. award: **0.25 points**

TB 06-154 What is the total flow between departments B and D...

What is the total flow between departments B and D?

120 loads per month

Short Answer	*TB 06-154 What is the total flow between departments B and D...*

719. award: **0.25 points**

TB 06-155 If departments A through D were to be located in a...

If departments A through D were to be located in areas 1 through 4, respectively, what would be the total distance loads would be moved each month?

40,000 feet

Short Answer	*TB 06-155 If departments A through D were to be located in a...*

720. award: **0.25 points**

TB 06-156 If department C must be located in area 1, what la...
If department C must be located in area 1, what layout will minimize the total distance loads will be moved each month?

C in 1; A in 2; D in 3; B in 4

Short Answer	*TB 06-156 If department C must be located in area 1, what la...*

721. award: **0.25 points**

TB 06-157 If transportation costs are $.25 per load per foot...
If transportation costs are $.25 per load per foot moved, what are total monthly costs for an optimum layout?

$7,000

Short Answer	*TB 06-157 If transportation costs are $.25 per load per foot...*

722. award: **0.25 points**

TB 06S-01 Linear programming techniques will produce an opti...
Linear programming techniques will produce an optimal solution to problems that involve limitations on resources.

→ ○ True
○ False

True / False	*TB 06S-01 Linear programming techniques will produce an opti...*

723. award: **0.25 points**

TB 06S-02 LP problems must have a single goal or objective s...
LP problems must have a single goal or objective specified.

→ ○ True
○ False

True / False	*TB 06S-02 LP problems must have a single goal or objective s...*

724. award: **0.25 points**

TB 06S-03 An example of a decision variable in an LP problem...
An example of a decision variable in an LP problem is profit maximization.

○ True
→ ○ False

True / False	*TB 06S-03 An example of a decision variable in an LP problem...*

725. award: **0.25 points**

TB 06S-04 Constraints limit the alternatives available to a ...
Constraints limit the alternatives available to a decision-maker.

→ ○ True
○ False

True / False	*TB 06S-04 Constraints limit the alternatives available to a ...*

726. award: **0.25 points**

TB 06S-05 The feasible solution space only contains points t...
The feasible solution space only contains points that satisfy all constraints.

→ ○ True
○ False

True / False	*TB 06S-05 The feasible solution space only contains points t...*

727. award: **0.25 points**

TB 06S-06 The equation 5x 7y = 10 is linear.
The equation 5x + 7y = 10 is linear.

→ ○ True
○ False

True / False	*TB 06S-06 The equation 5x 7y = 10 is linear.*

728. award: **0.25 points**

TB 06S-07 The equation 3xy = 9 is linear.
The equation 3xy = 9 is linear.

○ True
→ ○ False

True / False	*TB 06S-07 The equation 3xy = 9 is linear.*

729. award: **0.25 points**

TB 06S-08 A maximization problem may be characterized by all...
A maximization problem may be characterized by all greater than or equal to constraints.

○ True
→ ○ False

True / False	*TB 06S-08 A maximization problem may be characterized by all...*

730. award: **0.25 points**

TB 06S-09 The graphical Solution Method can handle problems ...
The graphical Solution Method can handle problems that involve any number of decision variables.

- True
- → False

True / False	*TB 06S-09 The graphical Solution Method can handle problems ...*

731. award: **0.25 points**

TB 06S-10 The feasible solution space is the set of all feas...
The feasible solution space is the set of all feasible combinations of decision variables as defined by only binding constraints.

- True
- → False

True / False	*TB 06S-10 The feasible solution space is the set of all feas...*

732. award: **0.25 points**

TB 06S-11 An objective function represents a family of paral...
An objective function represents a family of parallel lines.

- → True
- False

True / False	*TB 06S-11 An objective function represents a family of paral...*

733. award: **0.25 points**

TB 06S-12 The term iso-profit line means that all points o...
The term "iso-profit" line means that all points on the line will yield the same profit.

- → True
- False

True / False	*TB 06S-12 The term iso-profit line means that all points o...*

734. award: **0.25 points**

TB 06S-13 The value of an objective function decreases as it...
The value of an objective function decreases as it is moved away from the origin.

- True
- → False

True / False	*TB 06S-13 The value of an objective function decreases as it...*

735. award: **0.25 points**

TB 06S-14 The removal of a redundant constraint does not aff...
The removal of a redundant constraint does not affect the feasible solution space.

→ ○ True
○ False

True / False	*TB 06S-14 The removal of a redundant constraint does not aff...*

736. award: **0.25 points**

TB 06S-15 If a single optimal solution exists to a graphical...
If a single optimal solution exists to a graphical LP problem, it will exist at a corner point.

→ ○ True
○ False

True / False	*TB 06S-15 If a single optimal solution exists to a graphical...*

737. award: **0.25 points**

TB 06S-16 A linear programming problem can have multiple opt...
A linear programming problem can have multiple optimal solutions.

→ ○ True
○ False

True / False	*TB 06S-16 A linear programming problem can have multiple opt...*

738. award: **0.25 points**

TB 06S-17 The simplex method is a LP algorithm than can be u...
The simplex method is a LP algorithm than can be used for solving only large-scale problems.

○ True
→ ○ False

True / False	*TB 06S-17 The simplex method is a LP algorithm than can be u...*

739. award: **0.25 points**

TB 06S-18 Slack or surplus is associated with a binding cons...
Slack or surplus is associated with a binding constraint.

○ True
→ ○ False

True / False	*TB 06S-18 Slack or surplus is associated with a binding cons...*

740. award: **0.25 points**

TB 06S-19 Every constraint in a maximization problem has a s...
Every constraint in a maximization problem has a slack variable.

- True
- → False

True / False	*TB 06S-19 Every constraint in a maximization problem has a s...*

741. award: **0.25 points**

TB 06S-20 A change in the value of an objective function coe...
A change in the value of an objective function coefficient does not change the optimal solution.

- True
- → False

True / False	*TB 06S-20 A change in the value of an objective function coe...*

742. award: **0.25 points**

TB 06S-21 The term range of optimality refers to a constra...
The term "range of optimality" refers to a constraint's right-hand side quantity.

- → True
- False

True / False	*TB 06S-21 The term range of optimality refers to a constra...*

743. award: **0.25 points**

TB 06S-22 Every change in the value of an objective function...
Every change in the value of an objective function coefficient will lead to a changed optimal solution.

- True
- → False

True / False	*TB 06S-22 Every change in the value of an objective function...*

744. award: **0.25 points**

TB 06S-23 When a change in the value of an objective functio...
When a change in the value of an objective function coefficient remains within the range of optimality, the optimal solution would also remain the same.

- → True
- False

True / False	*TB 06S-23 When a change in the value of an objective functio...*

745. award: **0.25 points**

TB 06S-24 A shadow price indicates how much a one-unit decre...
A shadow price indicates how much a one-unit decrease/increase in the right-hand side value of a constraint will decrease/increase the optimal value of the objective function.

→ ○ True
○ False

True / False	*TB 06S-24 A shadow price indicates how much a one-unit decre...*

746. award: **0.25 points**

TB 06S-25 The term range of feasibility refers to coeffici...
The term "range of feasibility" refers to coefficients of the objective function.

○ True
→ ○ False

True / False	*TB 06S-25 The term range of feasibility refers to coeffici...*

747. award: **0.25 points**

TB 06S-26 In the range of feasibility, the value of the shad...
In the range of feasibility, the value of the shadow price remains constant.

→ ○ True
○ False

True / False	*TB 06S-26 In the range of feasibility, the value of the shad...*

748. award: **0.25 points**

TB 06S-27 The linear optimization technique for allocating c...
The linear optimization technique for allocating constrained resources among different products is:

○ linear regression analysis
○ linear disaggregation
○ linear decomposition
→ ○ linear programming
○ linear tracking analysis

Multiple Choice	*TB 06S-27 The linear optimization technique for allocating c...*

749. award: **0.25 points**

TB 06S-28 Which of the following is not a component of the s...
Which of the following is not a component of the structure of a linear programming model?

○ Constraints
○ Decision variables
→ ○ Environment of certainty
○ A goal or objective
○ All of these are components

Multiple Choice	*TB 06S-28 Which of the following is not a component of the s...*

750. award: **0.25 points**

TB 06S-29 Which of the following is not written in the stand...

Which of the following is not written in the standard form of a linear programming problem constraint?

- 1A + 2B ≥ 3
- 1A + 2B ≤ 3
- 1A + 2B = 3
- 1A + 2B + 3C + 4D ≤ 5
- → 2A ≤ 3B

Multiple Choice	*TB 06S-29 Which of the following is not written in the stand...*

751. award: **0.25 points**

TB 06S-30 For the products A, B, C, and D, which of the foll...

For the products A, B, C, and D, which of the following could be a linear programming objective function?

- → Z = 1A + 2B + 3C + 4D
- Z = 1A + 2BC + 3D
- Z = 1A + 2AB + 3ABC + 4ABCD
- Z = 1A + 2B/C + 3D
- all of the choices

Multiple Choice	*TB 06S-30 For the products A, B, C, and D, which of the foll...*

752. award: **0.25 points**

TB 06S-31 The logical approach, from beginning to end, for a...

The logical approach, from beginning to end, for assembling a linear programming model begins with:

- → identifying the decision variables
- identifying the objective function
- specifying the objective function parameters
- identifying the constraints
- specifying the constraint parameters

Multiple Choice	*TB 06S-31 The logical approach, from beginning to end, for a...*

753. award: **0.25 points**

TB 06S-32 The region which satisfies all of the constraints ...

The region which satisfies all of the constraints in linear programming is called the:

- optimum solution space
- region of optimality
- profit maximization space
- region of non-negativity
- → feasible solution space

Multiple Choice	*TB 06S-32 The region which satisfies all of the constraints ...*

754. award: **0.25 points**

TB 06S-33 Which of the following is not a necessary assumpti...

Which of the following is not a necessary assumption in order for a linear programming model to be used effectively?

- Linearity
- → Exponentiality
- Divisibility
- Certainty
- Non-negativity

Multiple Choice	*TB 06S-33 Which of the following is not a necessary assumpti...*

755. award: **0.25 points**

TB 06S-34 For the constraints given below, which point is in...

For the constraints given below, which point is in the feasible solution space of this maximization problem?

(1) $14x + 6y \leq 42$
(2) $x - y \leq 3$

- x = 1, y = 5
- x = -1, y = 1
- x = 4, y = 4
- → x = 2, y = 1
- x = 2, y = 8

Multiple Choice	*TB 06S-34 For the constraints given below, which point is in...*

756. award: **0.25 points**

TB 06S-35 In graphical linear programming the objective func...

In graphical linear programming the objective function is:

I) linear
II) a family of parallel lines
III) a family of isoprofit lines

- I only
- II only
- III only
- I and II only
- → I, II, and III

Multiple Choice	*TB 06S-35 In graphical linear programming the objective func...*

757. award: **0.25 points**

TB 06S-36 Which objective function has the same slope as thi...

Which objective function has the same slope as this one: $4x + $2y = $20?

- → $4x + $2y = $10
- $2x + $4y = $20
- $2x - $4y = $20
- $4x - $2y = $20
- $8x + $8y = $20

Multiple Choice	*TB 06S-36 Which objective function has the same slope as thi...*

758. award: **0.25 points**

TB 06S-37 What combination of x and y will yield the optimum...
What combination of x and y will yield the optimum for this problem? Maximize Z = $3x + $15y; Subject to:

(1) 2x + 4y ≤ 12
(2) 5x + 2y ≤ 10

- x = 2, y = 0
- x = 0, y = 0
- → x = 0, y = 3
- x = 1, y = 5
- none of the choices

Multiple Choice	*TB 06S-37 What combination of x and y will yield the optimum...*

759. award: **0.25 points**

TB 06S-38 Which of the choices below constitutes a simultane...
Which of the choices below constitutes a simultaneous solution to these equations?

(1) 3x + 4y = 10 and (2) 5x + 4y = 14?

- x = 2, y = .5
- x = 4, y = -.5
- → x = 2, y = 1
- x = y
- y = 2x

Multiple Choice	*TB 06S-38 Which of the choices below constitutes a simultane...*

760. award: **0.25 points**

TB 06S-39 Which of the choices below constitutes a simultane...
Which of the choices below constitutes a simultaneous solution to these equations?

(1) 3x + 2y = 6 and (2) 6x + 3y = 12?

- x = 1, y = 1.5
- x = .5, y = 2
- x = 0, y = 3
- → x = 2, y = 0
- x = 0, y = 0

Multiple Choice	*TB 06S-39 Which of the choices below constitutes a simultane...*

761. award: **0.25 points**

TB 06S-40 A constraint that does not form a unique boundary ...
A constraint that does not form a unique boundary of the feasible solution space is a:

- → redundant constraint
- binding constraint
- non-binding constraint
- feasible solution constraint
- none of the choices

Multiple Choice	*TB 06S-40 A constraint that does not form a unique boundary ...*

762. award: **0.25 points**

TB 06S-41 In the graphical method of linear programming, whe...
In the graphical method of linear programming, when the objective function is parallel to one of the constraints, then:

- the solution is suboptimal
- → multiple optimal solutions exist
- a single corner point solution exists
- no feasible solution exists
- none of the choices

Multiple Choice	*TB 06S-41 In the graphical method of linear programming, whe...*

763. award: **0.25 points**

TB 06S-42 For the constraints given below, which point is in...
For the constraints given below, which point is in the feasible solution space of this minimization problem?

(1) 14x + 6y ³ 42
(2) x + 3y ³ 6

- x = 0.5, y = 5.0
- x = 0.0, y = 4.0
- → x = 2.0, y = 5.0
- x = 1.0, y = 2.0
- x = 2.0, y = 1.0

Multiple Choice	*TB 06S-42 For the constraints given below, which point is in...*

764. award: **0.25 points**

TB 06S-43 What combination of x and y will provide a minimum...
What combination of x and y will provide a minimum for this problem? Minimize Z = $3x + $15y; Subject to:

(1) 2x + 4y ³ 12
(2) 5x + 2y ³ 10

- x = 0, y = 0
- x = 0, y = 3
- x = 0, y = 5
- x = 1, y = 2.5
- → x = 6, y = 0

Multiple Choice	*TB 06S-43 What combination of x and y will provide a minimum...*

765. award: **0.25 points**

TB 06S-44 The theoretical limit on the number of decision va...
The theoretical limit on the number of decision variables that can be handled by the simplex method in a single problem is:

- 1
- 2
- 3
- 4
- → unlimited

Multiple Choice	*TB 06S-44 The theoretical limit on the number of decision va...*

766. award: **0.25 points**

TB 06S-45 The theoretical limit on the number of constraints...

The theoretical limit on the number of constraints that can be handled by the simplex method in a single problem is:

- 1
- 2
- 3
- 4
- → unlimited

Multiple Choice	*TB 06S-45 The theoretical limit on the number of constraints...*

767. award: **0.25 points**

TB 06S-46 In linear programming, sensitivity analysis is ass...

In linear programming, sensitivity analysis is associated with:

I. objective function coefficient
II. right-hand side values of constraints
III. constraint coefficient

- I and II only
- II and III only
- → I, II, and III
- I and III only
- none of the choices

Multiple Choice	*TB 06S-46 In linear programming, sensitivity analysis is ass...*

768. award: **0.25 points**

TB 06S-47 A shadow price reflects which of the following in ...

A shadow price reflects which of the following in a maximization problem?

- the marginal cost of adding additional resources
- → the marginal gain in the objective that would be realized by adding one unit of a resource
- the net gain in the objective that would be realized by adding one unit of a resource
- the marginal gain in the objective that would be realized by subtracting one unit of a resource
- none of the choices

Multiple Choice	*TB 06S-47 A shadow price reflects which of the following in ...*

The production planner for Fine Coffees, Inc. prod...

The production planner for Fine Coffees, Inc. produces two coffee blends: American (A) and British (B). Two of his resources are constrained: Columbia beans, of which he can get at most 300 pounds (4,800 ounces) per week; and Dominican beans, of which he can get at most 200 pounds (3,200 ounces) per week. Each pound of American blend coffee requires 12 ounces of Colombian beans and 4 ounces of Dominican beans; while a pound of British blend coffee uses 8 ounces of each type of bean. Profits for the American blend are $2.00 per pound, and profits for the British blend are $1.00 per pound.

Section Break	*The production planner for Fine Coffees, Inc. prod...*

769. award: **0.25 points**

TB 06S-48 What is the objective function?
What is the objective function?

- $1 A + $2 B = Z
- $12 A + $8 B = Z
- → $2 A + $1 B = Z
- $8 A + $12 B = Z
- $4 A + $8 B = Z

Multiple Choice	*TB 06S-48 What is the objective function?*

770. award: **0.25 points**

TB 06S-50 What is the Dominican bean constraint?
What is the Dominican bean constraint?

- 12A + 8B ≤ 4,800
- 8A + 12B ≤ 4,800
- → 4A + 8B ≤ 3,200
- 8A + 4B ≤ 3,200
- 4A + 8B ≤ 4,800

Multiple Choice	*TB 06S-50 What is the Dominican bean constraint?*

771. award: **0.25 points**

TB 06S-51 Which of the following is not a feasible productio...
Which of the following is not a feasible production combination?

- 0 A & 0 B
- 0 A & 400 B
- 200 A & 300 B
- 400 A & 0 B
- → 400 A & 400 B

Multiple Choice	*TB 06S-51 Which of the following is not a feasible productio...*

772. award: **0.25 points**

TB 06S-52 Using the graphical method, what are optimal weekl...
Using the graphical method, what are optimal weekly profits?

- $0
- $400
- → $700
- $800
- $900

Multiple Choice	*TB 06S-52 Using the graphical method, what are optimal weekl...*

773. award: **0.25 points**

TB 06S-53 For the production combination of 0 American and 4...

For the production combination of 0 American and 400 British, which resource is "slack" (not fully used)?

→ ○ Colombian beans (only)
○ Dominican beans (only)
○ both Colombian beans and Dominican beans
○ neither Colombian beans nor Dominican beans
○ cannot be determined exactly

Multiple Choice	*TB 06S-53 For the production combination of 0 American and 4...*

774. award: **0.25 points**

TB 06S-49 What is the Columbia bean constraint?

What is the Columbia bean constraint?

○ 1 A + 2 B ≤ 4,800
→ ○ 12 A + 8 B ≤ 4,800
○ 2 A + 1 B ≤ 4,800
○ 8 A + 12 B ≤ 4,800
○ 4 A + 8 B ≤ 4,800

Multiple Choice	*TB 06S-49 What is the Columbia bean constraint?*

The operations manager for the Blue Moon Brewing C...

The operations manager for the Blue Moon Brewing Co. produces two beers: Lite (L) and Dark (D). Two of his resources are constrained: production time, which is limited to 8 hours (480 minutes) per day; and malt extract (one of his ingredients), of which he can get only 675 gallons each day. To produce a keg of Lite beer requires 2 minutes of time and 5 gallons of malt extract, while each keg of Dark beer needs 4 minutes of time and 3 gallons of malt extract. Profits for Lite beer are $3.00 per keg, and profits for Dark beer are $2.00 per keg.

Section Break	*The operations manager for the Blue Moon Brewing C...*

775. award: **0.25 points**

TB 06S-54 What is the objective function?

What is the objective function?

○ $2 L + $3 D = Z
○ $2 L + $4 D = Z
→ ○ $3 L + $2 D = Z
○ $4 L + $2 D = Z
○ $5 L + $3 D = Z

Multiple Choice	*TB 06S-54 What is the objective function?*

776. award: **0.25 points**

TB 06S-55 What is the time constraint?
What is the time constraint?

- 2 L + 3 D ≤ 480
- → 2 L + 4 D ≤ 480
- 3 L + 2 D ≤ 480
- 4 L + 2 D ≤ 480
- 5 L + 3 D ≤ 480

Multiple Choice	*TB 06S-55 What is the time constraint?*

777. award: **0.25 points**

TB 06S-56 Which of the following is not a feasible productio...
Which of the following is not a feasible production combination?

- 0 L & 0 D
- 0 L & 120 D
- 90 L & 75 D
- 135 L & 0 D
- → 135 L & 120 D

Multiple Choice	*TB 06S-56 Which of the following is not a feasible productio...*

778. award: **0.25 points**

TB 06S-57 What are optimal daily profits?
What are optimal daily profits?

- $0
- $240
- → $420
- $405
- $505

Multiple Choice	*TB 06S-57 What are optimal daily profits?*

779. award: **0.25 points**

TB 06S-58 For the production combination of 135 Lite and 0 D...
For the production combination of 135 Lite and 0 Dark, which resource is "slack" (not fully used)?

- → time (only)
- malt extract (only)
- both time and malt extract
- neither time nor malt extract
- cannot be determined exactly

Multiple Choice	*TB 06S-58 For the production combination of 135 Lite and 0 D...*

The production planner for a private label soft dr...

The production planner for a private label soft drink maker is planning the production of two soft drinks: root beer (R) and sassafras soda (S). Two resources are constrained: production time (T), of which she has at most 12 hours per day; and carbonated water (W), of which she can get at most 1500 gallons per day. A case of root beer requires 2 minutes of time and 5 gallons of water to produce, while a case of sassafras soda requires 3 minutes of time and 5 gallons of water. Profits for the root beer are $6.00 per case, and profits for the sassafras soda are $4.00 per case.

Section Break	*The production planner for a private label soft dr...*

780. award: **0.25 points**

TB 06S-59 What is the objective function?

What is the objective function?

- $4 R + $6 S = Z
- $2 R + $3 S = Z
- → $6 R + $4 S = Z
- $3 R + $2 S = Z
- $5 R + $5 S = Z

Multiple Choice	*TB 06S-59 What is the objective function?*

781. award: **0.25 points**

TB 06S-60 What is the production time constraint (in minutes...

What is the production time constraint (in minutes)?

- → 2 R + 3 S ≤ 720
- 2 R + 5 S ≤ 720
- 3 R + 2 S ≤ 720
- 3 R + 5 S ≤ 720
- 5 R + 5 S ≤ 720

Multiple Choice	*TB 06S-60 What is the production time constraint (in minutes...*

782. award: **0.25 points**

TB 06S-61 Which of the following is not a feasible productio...

Which of the following is not a feasible production combination?

- 0 R & 0 S
- 0 R & 240 S
- 180 R & 120 S
- 300 R & 0 S
- → 180 R & 240 S

Multiple Choice	*TB 06S-61 Which of the following is not a feasible productio...*

783. award: **0.25 points**

TB 06S-62 Using the graphical method, what are optimal daily...

Using the graphical method, what are optimal daily profits?

- $960
- → $1,560
- $1,800
- $1,900
- $2,520

Multiple Choice	*TB 06S-62 Using the graphical method, what are optimal daily...*

784. award: **0.25 points**

TB 06S-63 For the production combination of 180 Root beer an...

For the production combination of 180 Root beer and 0 Sassafras sodas, which resource is "slack" (not fully used)?

- production time (only)
- carbonated water (only)
- → both production time and carbonated water
- neither production time nor carbonated water
- cannot be determined exactly

Multiple Choice	*TB 06S-63 For the production combination of 180 Root beer an...*

An electronics firm produces two models of pocket ...

An electronics firm produces two models of pocket calculators: the A-100 (A), which is an inexpensive four-function calculator, and the B-200 (B), which also features square root and percent functions. Each model uses one (the same) circuit board, of which there are only 2,500 available for this week's production. Also, the company has allocated a maximum of 800 hours of assembly time this week for producing these calculators, of which the A-100 requires 15 minutes (.25 hours) each, and the B-200 requires 30 minutes (.5 hours) each to produce. The firm forecasts that it could sell a maximum of 4,000 A-100's this week and a maximum of 1,000 B-200's. Profits for the A-100 are $1.00 each, and profits for the B-200 are $4.00 each.

Section Break	*An electronics firm produces two models of pocket ...*

785. award: **0.25 points**

TB 06S-64 What is the objective function?

What is the objective function?

- $4.00 A + $1.00 B = Z
- $0.25 A + $1.00 B = Z
- → $1.00 A + $4.00 B = Z
- $1.00 A + $1.00 B = Z
- $0.25 A + $0.50 B = Z

Multiple Choice	*TB 06S-64 What is the objective function?*

786. award: **0.25 points**

TB 06S-65 What is the assembly time constraint (in hours)?
What is the assembly time constraint (in hours)?

- 1 A + 1 B ≤ 800
- → 0.25 A + 0.5 B ≤ 800
- 0.5 A + 0.25 B ≤ 800
- 1 A + 0.5 B ≤ 800
- 0.25 A + 1 B ≤ 800

Multiple Choice	*TB 06S-65 What is the assembly time constraint (in hours)?*

787. award: **0.25 points**

TB 06S-66 Which of the following is not a feasible productio...
Which of the following is not a feasible production/sales combination?

- 0 A & 0 B
- 0 A & 1,000 B
- 1,800 A & 700 B
- 2,500 A & 0 B
- → 100 A & 1,600 B

Multiple Choice	*TB 06S-66 Which of the following is not a feasible productio...*

788. award: **0.25 points**

TB 06S-67 What are optimal weekly profits?
What are optimal weekly profits?

- $10,000
- $4,600
- $2,500
- → $5,200
- $6,400

Multiple Choice	*TB 06S-67 What are optimal weekly profits?*

789. award: **0.25 points**

TB 06S-68 For the production combination of 1,400 A-100's an...
For the production combination of 1,400 A-100's and 900 B-200's, which resource is "slack" (not fully used)?

- → circuit boards (only)
- assembly time (only)
- both circuit boards and assembly time
- neither circuit boards nor assembly time
- cannot be determined exactly

Multiple Choice	*TB 06S-68 For the production combination of 1,400 A-100's an...*

A local bagel shop produces two products: bagels (...

A local bagel shop produces two products: bagels (B) and croissants (C). Each bagel requires 6 ounces of flour, 1 gram of yeast, and 2 tablespoons of sugar. A croissant requires 3 ounces of flour, 1 gram of yeast, and 4 tablespoons of sugar. The company has 6,600 ounces of flour, 1,400 grams of yeast, and 4,800 tablespoons of sugar available for today's production run. Bagel profits are 20 cents each, and croissant profits are 30 cents each.

Section Break	*A local bagel shop produces two products: bagels (...*

790. award: **0.25 points**

TB 06S-69 What is the objective function?

What is the objective function?

- $0.30 B + $0.20 C = Z
- $0.60 B + $0.30 C = Z
- → $0.20 B + $0.30 C = Z
- $0.20 B + $0.40 C = Z
- $0.10 B + $0.10 C = Z

Multiple Choice	*TB 06S-69 What is the objective function?*

791. award: **0.25 points**

TB 06S-70 What is the sugar constraint (in tablespoons)?

What is the sugar constraint (in tablespoons)?

- 6 B + 3 C ≤ 4,800
- 1 B + 1 C ≤ 4,800
- → 2 B + 4 C ≤ 4,800
- 4 B + 2 C ≤ 4,800
- 2 B + 3 C ≤ 4,800

Multiple Choice	*TB 06S-70 What is the sugar constraint (in tablespoons)?*

792. award: **0.25 points**

TB 06S-71 Which of the following is not a feasible productio...

Which of the following is not a feasible production combination?

- 0 B & 0 C
- 0 B & 1,100 C
- 800 B & 600 C
- 1,100 B & 0 C
- → 0 B & 1,400 C

Multiple Choice	*TB 06S-71 Which of the following is not a feasible productio...*

793. award: **0.25 points**

TB 06S-72 Using the graphical method, what are optimal profi...

Using the graphical method, what are optimal profits for today's production run?

- $580
- → $340
- $220
- $380
- $420

Multiple Choice	*TB 06S-72 Using the graphical method, what are optimal profi...*

794. award: **0.25 points**

TB 06S-73 For the production combination of 600 bagels and 8...

For the production combination of 600 bagels and 800 croissants, which resource is "slack" (not fully used)?

- flour (only)
- sugar (only)
- flour and yeast
- → flour and sugar
- yeast and sugar

Multiple Choice	*TB 06S-73 For the production combination of 600 bagels and 8...*

The owner of Crackers, Inc. produces two kinds of ...

The owner of Crackers, Inc. produces two kinds of crackers: Deluxe (D) and Classic (C). She has a limited amount of the three ingredients used to produce these crackers available for her next production run: 4,800 ounces of sugar; 9,600 ounces of flour, and 2,000 ounces of salt. A box of Deluxe crackers requires 2 ounces of sugar, 6 ounces of flour, and 1 ounce of salt to produce; while a box of Classic crackers requires 3 ounces of sugar, 8 ounces of flour, and 2 ounces of salt. Profits for a box of Deluxe crackers are $0.40; and for a box of Classic crackers, $0.50.

Section Break	*The owner of Crackers, Inc. produces two kinds of ...*

795. award: **0.25 points**

TB 06S-74 What is the objective function?

What is the objective function?

- $0.50 D + $0.40 C = Z
- $0.20 D + $0.30 C = Z
- → $0.40 D + $0.50 C = Z
- $0.10 D + $0.20 C = Z
- $0.60 D + $0.80 C = Z

Multiple Choice	*TB 06S-74 What is the objective function?*

796. award: **0.25 points**

TB 06S-75 What is the constraint for sugar?
What is the constraint for sugar?

→ ○ 2 D + 3 C ≤ 4,800
○ 6 D + 8 C ≤ 4,800
○ 1 D + 2 C ≤ 4,800
○ 3 D + 2 C ≤ 4,800
○ 4 D + 5 C ≤ 4,800

Multiple Choice	*TB 06S-75 What is the constraint for sugar?*

797. award: **0.25 points**

TB 06S-76 Which of the following is not a feasible productio...
Which of the following is not a feasible production combination?

○ 0 D & 0 C
○ 0 D & 1,000 C
○ 800 D & 600 C
○ 1,600 D & 0 C
→ ○ 0 D & 1,200 C

Multiple Choice	*TB 06S-76 Which of the following is not a feasible productio...*

798. award: **0.25 points**

TB 06S-77 Using the graphical method, what are profits for t...
Using the graphical method, what are profits for the optimal production combination?

○ $800
○ $500
→ ○ $640
○ $620
○ $600

Multiple Choice	*TB 06S-77 Using the graphical method, what are profits for t...*

799. award: **0.25 points**

TB 06S-78 For the production combination of 800 boxes of Del...
For the production combination of 800 boxes of Deluxe and 600 boxes of Classic, which resource is slack (not fully used)?

→ ○ sugar (only)
○ flour (only)
○ salt (only)
○ sugar and flour
○ sugar and salt

Multiple Choice	*TB 06S-78 For the production combination of 800 boxes of Del...*

The logistics/operations manager of a mail order h...

The logistics/operations manager of a mail order house purchases two products for resale: King Beds (K) and Queen Beds (Q). Each King Bed costs $500 and requires 100 cubic feet of storage space, and each Queen Bed costs $300 and requires 90 cubic feet of storage space. The manager has $75,000 to invest in beds this week, and her warehouse has 18,000 cubic feet available for storage. Profit for each King Bed is $300, and for each Queen Bed is $150.

Section Break	*The logistics/operations manager of a mail order h...*

800. award: **0.25 points**

TB 06S-79 What is the objective function?

What is the objective function?

- Z = $150K + $300Q
- Z = $500K + $300Q
- → Z = $300K + $150Q
- Z = $300K + $500Q
- Z = $100K + $90Q

Multiple Choice	*TB 06S-79 What is the objective function?*

801. award: **0.25 points**

TB 06S-80 What is the storage space constraint?

What is the storage space constraint?

- 100K + 90Q ≤ 18,000
- 100K + 90Q ≤ 18,000
- 300K + 90Q ≤ 18,000
- 500K + 100Q ≤ 18,000
- → 100K + 90Q ≤ 18,000

Multiple Choice	*TB 06S-80 What is the storage space constraint?*

802. award: **0.25 points**

TB 06S-81 Which of the following is not a feasible purchase ...

Which of the following is not a feasible purchase combination?

- 0 King Beds and 0 Queen Beds
- → 0 King Beds and 250 Queen Beds
- 150 King Beds and 0 Queen Beds
- 90 King Beds and 100 Queen Beds
- 0 King Beds and 200 Queen Beds

Multiple Choice	*TB 06S-81 Which of the following is not a feasible purchase ...*

803. award: **0.25 points**

TB 06S-82 What is the maximum profit?

What is the maximum profit?

- $0
- $30,000
- $42,000
- → $45,000
- $54,000

Multiple Choice	*TB 06S-82 What is the maximum profit?*

804. award: **0.25 points**

TB 06S-83 For the purchase combination 0 King Beds and 200 Q...

For the purchase combination 0 King Beds and 200 Queen Beds, which resource is "slack" (not fully used)?

→ ○ investment money (only)
○ storage space (only)
○ both investment money and storage space
○ neither investment money nor storage space
○ cannot be determined exactly

Multiple Choice	*TB 06S-83 For the purchase combination 0 King Beds and 200 Q...*

805. award: **0.25 points**

TB 06S-84 Wood Specialties Company produces wall shelves, bo...

Wood Specialties Company produces wall shelves, bookends, and shadow boxes. It is necessary to plan the production schedule for next week. The wall shelves, bookends, and shadow boxes are made of oak, of which the company has 600 board feet. A wall shelf requires 4 board feet, bookends require 2 board feet, and a shadow box requires 3 board feet. The company has a power saw for cutting the oak boards into the appropriate pieces; a wall shelf requires 30 minutes, bookends require 15 minutes, and a shadow box requires 15 minutes. The power saw is expected to be available for 36 hours next week. After cutting, the pieces of work in process are hand finished in the finishing department, which consists of 4 skilled and experienced craftsmen, each of whom can complete any of the products. A wall shelf requires 60 minutes of finishing, bookends require 30 minutes, and a shadow box requires 90 minutes. The finishing department is expected to operate for 40 hours next week. Wall shelves sell for $29.95 and have a unit variable cost of $17.95; bookends sell for $11.95 and have a unit variable cost of $4.95; a shadow box sells for $16.95 and has a unit variable cost of $8.95.

(i) Is this a problem in maximization or minimization?
(ii) What are the decision variables? Suggest symbols for them.
(iii) What is the objective function?
(iv) What are the constraints?

(i) Since the problem contains information about the selling price, it will involve maximization.
(ii) The management can decide how many wall shelves, bookends, and shadow boxes to produce each week. We suggest using W, B, and S.
(iii) Maximize Z = 12W + 7B + 8S.
(iv) Oak) 4W + 2B + 3S ≤ 600 board feet Saw) (1/2)W + (1/4)B + (1/4)S ≤ 36 hours
Finishing) 1W + (1/2)B +(3/2)S ≤ 40 hours

Short Answer	*TB 06S-84 Wood Specialties Company produces wall shelves, bo...*

806. award: **0.25 points**

TB 06S-85 Consider the graphical linear programming problem ...

Consider the graphical linear programming problem below:

Maximize Z = $15X + $20y

Subject to:

(i) 8x + 5y ≤ 40
(ii) .4x + y ³ 4
Solve the values of x and y that will maximize revenue. What revenue will result?

x = 0, y = 8, Revenue = $160

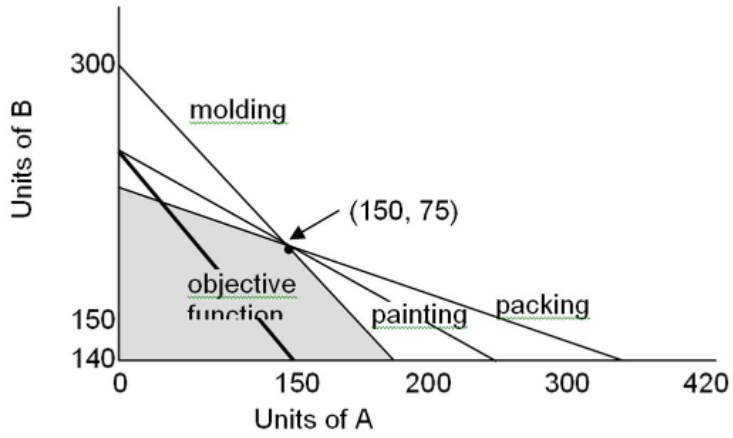
Short Answer	*TB 06S-85 Consider the graphical linear programming problem ...*

807. award: **0.25 points**

TB 06S-86 A manager must decide on the mix of products to pr...

A manager must decide on the mix of products to produce for the coming week. Product A requires three minutes per unit for molding, two minutes per unit for painting, and one minute per unit for packing. Product B requires two minutes per unit for molding, four minutes per unit for painting, and three minutes per unit for packing. There will be 600 minutes available for molding, 600 minutes for painting, and 420 minutes for packing. Both products have profits of $1.50 per unit.

(i) What combination of A and B will maximize profit?
(ii) What is the maximum possible profit?
(iii) How much of each resource will be unused for your solution?



Molding:	$3A + 2B$	$\leq$	600 minutes
Painting:	$2A + 4B$	$\leq$	600 minutes
Packing:	$1A + 3B$	$\leq$	420 minutes

(i) A = 150, B = 175
(ii) $1.50(150) + $1.50(75) = $337.50
(iii) Molding and painting: 0; packing 45 minutes

Short Answer	*TB 06S-86 A manager must decide on the mix of products to pr...*

808. award: **0.25 points**

TB 06S-87 Given this problem:Maximize Z = $.30x $.90ySubje...

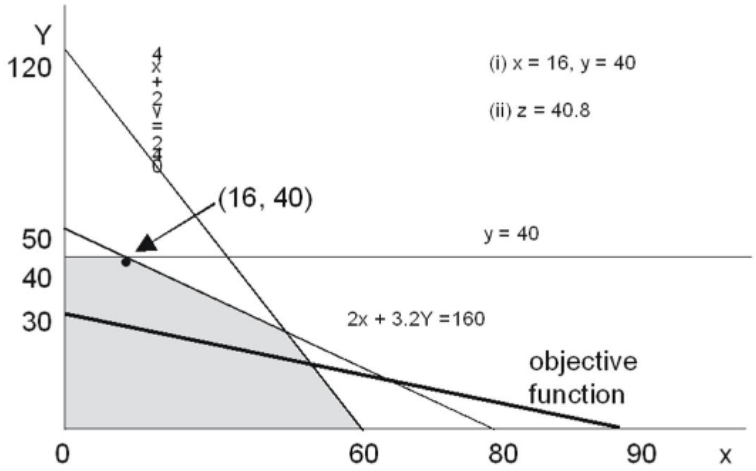
Given this problem:

Maximize Z = $.30x + $.90y

Subject to:

2x + 3.2y ≤ 160
4x + 2.0y ≤ 240
y W 40

(i) Solve for the quantities of x and y which will maximize Z.
(ii) What is the maximum value of Z?



Short Answer *TB 06S-87 Given this problem:Maximize Z = $.30x $.90ySubje...*

809. award: **0.25 points**

TB 06S-88 A small firm makes three products, which all follo...

A small firm makes three products, which all follow the same three step process, which consists of milling, inspection, and drilling. Product A requires 6 minutes of milling, 5 minutes of inspection, and 4 minutes of drilling; product B requires 2.5 minutes of milling, 2 minutes of inspection, and 2 minutes of drilling; and product C requires 5 minutes of milling, 4 minutes of inspection, and 8 minutes of drilling. The department has 20 hours available during the next period for milling, 15 hours for inspection, and 24 hours for drilling. Product A contributes $6.00 per unit to profit, product B contributes $4.00 per unit, and product C contributes $10.00 per unit.
Determine the optimum mix of products in terms of maximizing contributions to profits for the next period.

PROBLEM IS A MAX WITH 3 VARIABLES AND 3 CONSTRAINTS.

ROW	X 1	X 2	X 3		RHS
COST	6.00	4.00	10.00		
1 –	6.00	2.50	5.00	≤	1,200.00
2 –	5.00	2.00	4.00	≤	900.00
3 –	4.00	2.00	8.00	≤	1,440.00

NUMBER OF ITERATIONS: 2

OPTIMAL SOLUTION:

OBJECTIVE FUNCTION VALUE = 2,070
DECISION VARIABLE SECTION:

VARIABLE	STATUS	VALUE	REDUCED COST
X 1	Non-basic	0	3.5
X 2	Basic	180	0
X 3	Basic	135	0

SLACK VARIABLES SECTION:

SLACK	STATUS	VALUE	SHADOW PRICE
X 4	Basic	75	0
X 5	Non-basic	0	1.5
X 6	Non-basic	0	.5

Short Answer *TB 06S-88 A small firm makes three products, which all follo...*

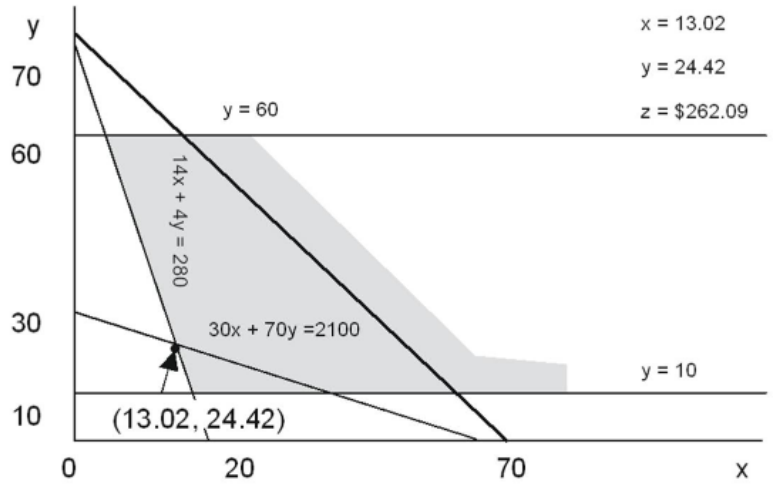
810. award: **0.25 points**

TB 06S-89 Determine the amounts of x and y that will minimiz...

Determine the amounts of x and y that will minimize cost. What is the minimum cost these amounts will yield? Minimize Z = $7x + $7y

Subject to:

14x + 4y ³ 280
30x + 70y ³ 2,100
y ≤ 60
y ³ 10



Short Answer	*TB 06S-89 Determine the amounts of x and y that will minimiz...*

811. award: **0.25 points**

TB 06S-90 Consider the linear programming problem below:Mini...

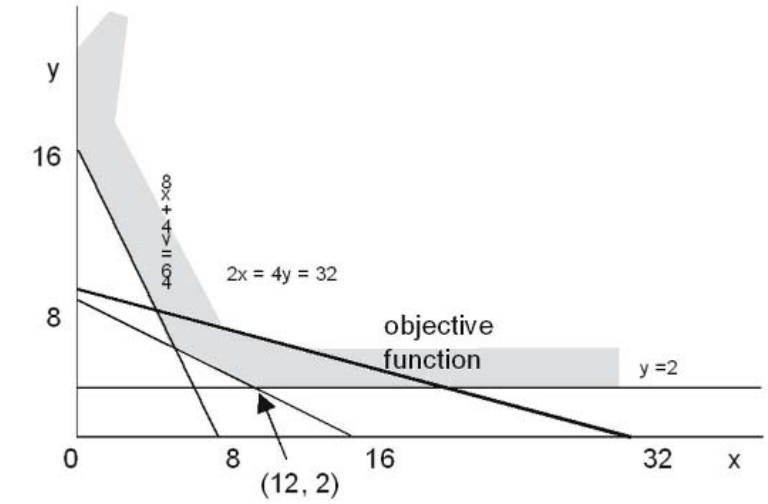
Consider the linear programming problem below:

Minimize Z = $2x + $8y

Subject to:

(i) 8x + 4y ³ 64
(ii) 2x + 4y ³ 32
(iii) y ³ 2

Determine the optimum amounts of x and y in terms of cost minimization. What is the minimum cost?



x = 12

y = 2

z = 40

Short Answer	*TB 06S-90 Consider the linear programming problem below:Mini...*

A company produces two products (A and B) using th...

A company produces two products (A and B) using three resources (I, II, and III). Each product A requires 1 unit of resource I and 3 units of resource II; and has a profit of $1. Each product B requires 2 units of resource I, 3 units of resource II, and 4 units of resource III; and has a profit of $3. Resource I is constrained to 40 units maximum per day; resource II, 90 units; and resource III, 60 units.

Section Break	*A company produces two products (A and B) using th...*

812. award: **0.25 points**

TB 06S-91 What is the objective function?

What is the objective function?

Z = $1A + $3B

Short Answer	*TB 06S-91 What is the objective function?*

813. award: **0.25 points**

TB 06S-92 What is the constraint for resource I?
What is the constraint for resource I?

1A + 2B ≤ 40

Short Answer *TB 06S-92 What is the constraint for resource I?*

814. award: **0.25 points**

TB 06S-93 What is the constraint for resource II?
What is the constraint for resource II?

3A + 3B ≤ 90

Short Answer *TB 06S-93 What is the constraint for resource II?*

815. award: **0.25 points**

TB 06S-94 What is the constraint for resource III?
What is the constraint for resource III?

4B ≤ 60

Short Answer *TB 06S-94 What is the constraint for resource III?*

816. award: **0.25 points**

TB 06S-95 What are the corner points of the feasible solutio...
What are the corner points of the feasible solution space?

A = 0,B = 0; A = 30,B = 0; A = 20,B = 10; A = 10,B = 15; A = 0,B = 15

Short Answer *TB 06S-95 What are the corner points of the feasible solutio...*

817. award: **0.25 points**

TB 06S-96 Is the production combination 10 A's and 10 B's fe...
Is the production combination 10 A's and 10 B's feasible?

Yes

Short Answer *TB 06S-96 Is the production combination 10 A's and 10 B's fe...*

818. award: **0.25 points**

TB 06S-97 Is the production combination 15 A's and 15 B's fe...
Is the production combination 15 A's and 15 B's feasible?

No

Short Answer	*TB 06S-97 Is the production combination 15 A's and 15 B's fe...*

819. award: **0.25 points**

TB 06S-98 What is the optimum production combination and its...
What is the optimum production combination and its profits?

A = 10,B = 15; Z = $55

Short Answer	*TB 06S-98 What is the optimum production combination and its...*

820. award: **0.25 points**

TB 06S-99 What is the slack (unused amount) for each resourc...
What is the slack (unused amount) for each resource for the optimum production combination?

S(I) = 0; S(II) = 15; S(III) = 0

Short Answer	*TB 06S-99 What is the slack (unused amount) for each resourc...*

821. award: **0.25 points**

TB 07-01 Working conditions, such as noise and safety, are ...
Working conditions, such as noise and safety, are important aspects of work system design.

→ ○ True
○ False

True / False	*TB 07-01 Working conditions, such as noise and safety, are ...*

822. award: **0.25 points**

TB 07-02 The name Frederick Winslow Taylor is associated wi...
The name Frederick Winslow Taylor is associated with the efficiency approach to job design.

→ ○ True
○ False

True / False	*TB 07-02 The name Frederick Winslow Taylor is associated wi...*

823. award: **0.25 points**

TB 07-03 The ultimate goal of job design is efficiency.
The ultimate goal of job design is efficiency.

- True
- → False

True / False	*TB 07-03 The ultimate goal of job design is efficiency.*

824. award: **0.25 points**

TB 07-04 Specialization is a source of disagreement between...
Specialization is a source of disagreement between the efficiency and behavioural approaches to job design.

- → True
- False

True / False	*TB 07-04 Specialization is a source of disagreement between...*

825. award: **0.25 points**

TB 07-05 Job enlargement involves an increase in the level ...
Job enlargement involves an increase in the level of responsibility for planning and coordinating tasks.

- True
- → False

True / False	*TB 07-05 Job enlargement involves an increase in the level ...*

826. award: **0.25 points**

TB 07-06 Job enlargement represents vertical loading of a j...
Job enlargement represents vertical loading of a job, increasing the level of skills and responsibilities associated with the original job.

- True
- → False

True / False	*TB 07-06 Job enlargement represents vertical loading of a j...*

827. award: **0.25 points**

TB 07-07 Job enrichment involves giving a worker a greater ...
Job enrichment involves giving a worker a greater share of the total task.

- True
- → False

True / False	*TB 07-07 Job enrichment involves giving a worker a greater ...*

828. award: **0.25 points**

TB 07-08 Job enrichment involves an increase in the level o...
Job enrichment involves an increase in the level of responsibility for planning and coordinating tasks.

→ True
False

True / False	*TB 07-08 Job enrichment involves an increase in the level o...*

829. award: **0.25 points**

TB 07-09 Behavioural approaches to job design seek to impro...
Behavioural approaches to job design seek to improve quality of work life.

→ True
False

True / False	*TB 07-09 Behavioural approaches to job design seek to impro...*

830. award: **0.25 points**

TB 07-10 Self-directed teams are allowed to make changes ...
"Self-directed teams" are allowed to make changes in the work processes under their control.

→ True
False

True / False	*TB 07-10 Self-directed teams are allowed to make changes ...*

831. award: **0.25 points**

TB 07-11 Self-directed teams are given broad authority to...
"Self-directed teams" are given broad authority to make decisions concerning all issues in the organization that have an impact on their work unit.

True
→ False

True / False	*TB 07-11 Self-directed teams are given broad authority to...*

832. award: **0.25 points**

TB 07-12 Potential benefits of self-directed teams includ...
Potential benefits of "self-directed teams" include higher productivity and greater worker satisfaction.

→ True
False

True / False	*TB 07-12 Potential benefits of self-directed teams includ...*

833. award: **0.25 points**

TB 07-13 One of the potential benefits of self-directed te...
One of the potential benefits of "self-directed teams" is higher quality.

→ ○ True
○ False

True / False	*TB 07-13 One of the potential benefits of self-directed te...*

834. award: **0.25 points**

TB 07-14 Methods analysis focuses on how a job can be made ...
Methods analysis focuses on how a job can be made more efficient.

→ ○ True
○ False

True / False	*TB 07-14 Methods analysis focuses on how a job can be made ...*

835. award: **0.25 points**

TB 07-15 Methods analysis cannot be done for jobs that do n...
Methods analysis cannot be done for jobs that do not yet exist.

○ True
→ ○ False

True / False	*TB 07-15 Methods analysis cannot be done for jobs that do n...*

836. award: **0.25 points**

TB 07-16 A process chart can be useful for analyzing and im...
A process chart can be useful for analyzing and improving methods.

→ ○ True
○ False

True / False	*TB 07-16 A process chart can be useful for analyzing and im...*

837. award: **0.25 points**

TB 07-17 A worker-machine chart is helpful to visualize por...
A worker-machine chart is helpful to visualize portions of a work cycle during which an operator and equipment are busy or idle.

→ ○ True
○ False

True / False	*TB 07-17 A worker-machine chart is helpful to visualize por...*

838. award: **0.25 points**

TB 07-18 Methods analysis and motion study techniques do no...
Methods analysis and motion study techniques do not directly consider behavioural aspects of jobs.

→ ○ True
○ False

True / False	*TB 07-18 Methods analysis and motion study techniques do no...*

839. award: **0.25 points**

TB 07-19 A worker-machine chart can be used to determine ho...
A worker-machine chart can be used to determine how many machines an operator can manage.

→ ○ True
○ False

True / False	*TB 07-19 A worker-machine chart can be used to determine ho...*

840. award: **0.25 points**

TB 07-20 Frank and Lillian Gilbreth's primary contribution ...
Frank and Lillian Gilbreth's primary contribution to the design of work systems involved the development of motion study techniques.

→ ○ True
○ False

True / False	*TB 07-20 Frank and Lillian Gilbreth's primary contribution ...*

841. award: **0.25 points**

TB 07-21 Task specialization is one of three categories of ...
Task specialization is one of three categories of motion economy principles.

○ True
→ ○ False

True / False	*TB 07-21 Task specialization is one of three categories of ...*

842. award: **0.25 points**

TB 07-22 Micro-motion studies are useful for training worke...
Micro-motion studies are useful for training workers as well as athletes.

→ ○ True
○ False

True / False	*TB 07-22 Micro-motion studies are useful for training worke...*

843. award: **0.25 points**

TB 07-23 The establishment of a Workplace Hazardous Materia...
The establishment of a Workplace Hazardous Materials Information System (WHMIS) gives workers the right to refuse dangerous work.

- True
- → False

True / False	*TB 07-23 The establishment of a Workplace Hazardous Materia...*

844. award: **0.25 points**

TB 07-24 More strenuous work leads to a higher comfort band...
More strenuous work leads to a higher comfort band for temperature.

- True
- → False

True / False	*TB 07-24 More strenuous work leads to a higher comfort band...*

845. award: **0.25 points**

TB 07-25 Efficiency generally declines after a work break.
Efficiency generally declines after a work break.

- True
- → False

True / False	*TB 07-25 Efficiency generally declines after a work break.*

846. award: **0.25 points**

TB 07-26 The Canadian Labour Code focuses on laws concernin...
The Canadian Labour Code focuses on laws concerning wages and the right to form unions, not the safety and welfare of workers.

- True
- → False

True / False	*TB 07-26 The Canadian Labour Code focuses on laws concernin...*

847. award: **0.25 points**

TB 07-27 Ergonomics is important for preventing common work...
Ergonomics is important for preventing common workplace injuries such as back injuries and repetitive motion injuries.

- → True
- False

True / False	*TB 07-27 Ergonomics is important for preventing common work...*

848. award: **0.25 points**

TB 07-28 Work measurement concentrates on how long it takes...
Work measurement concentrates on how long it takes to complete a job.

→ ○ True
○ False

True / False	*TB 07-28 Work measurement concentrates on how long it takes...*

849. award: **0.25 points**

TB 07-29 One of the most widely used method of work measure...
One of the most widely used method of work measurement is work sampling.

○ True
→ ○ False

True / False	*TB 07-29 One of the most widely used method of work measure...*

850. award: **0.25 points**

TB 07-30 For purposes of obtaining good time standards usin...
For purposes of obtaining good time standards using a stopwatch time study, the analyst should try to avoid having the worker discover he or she is being observed.

○ True
→ ○ False

True / False	*TB 07-30 For purposes of obtaining good time standards usin...*

851. award: **0.25 points**

TB 07-31 One factor in determining how many cycles to time ...
One factor in determining how many cycles to time in a stopwatch time study is the variability of observed times.

→ ○ True
○ False

True / False	*TB 07-31 One factor in determining how many cycles to time ...*

852. award: **0.25 points**

TB 07-32 The normal time in stopwatch time study is obtaine...
The normal time in stopwatch time study is obtained by multiplying the observed time by the performance rating.

→ ○ True
○ False

True / False	*TB 07-32 The normal time in stopwatch time study is obtaine...*

853. award: **0.25 points**

TB 07-33 A performance rating of less than 1.00 means that ...
A performance rating of less than 1.00 means that the observed worker was judged to be working at a faster than the normal rate.

- True
- → False

True / False	*TB 07-33 A performance rating of less than 1.00 means that ...*

854. award: **0.25 points**

TB 07-34 A performance rating of greater than 1.00 means th...
A performance rating of greater than 1.00 means that the observed worker was judged to be working at a faster than normal rate.

- → True
- False

True / False	*TB 07-34 A performance rating of greater than 1.00 means th...*

855. award: **0.25 points**

TB 07-35 The normal time for a job is multiplied by the per...
The normal time for a job is multiplied by the performance rating to obtain the standard time for the job.

- True
- → False

True / False	*TB 07-35 The normal time for a job is multiplied by the per...*

856. award: **0.25 points**

TB 07-36 The standard time for a job is the product of the ...
The standard time for a job is the product of the observed time, the performance rating, and an allowance factor.

- True
- → False

True / False	*TB 07-36 The standard time for a job is the product of the ...*

857. award: **0.25 points**

TB 07-37 The standard time for a job can be obtained by mul...
The standard time for a job can be obtained by multiplying the normal time by an appropriate allowance factor.

- → True
- False

True / False	*TB 07-37 The standard time for a job can be obtained by mul...*

858. award: **0.25 points**

TB 07-38 Predetermined time standards use historical data f...
Predetermined time standards use historical data from a company's own files.

- True
- → False

True / False	*TB 07-38 Predetermined time standards use historical data f...*

859. award: **0.25 points**

TB 07-39 Predetermined time standards involve the use of pu...
Predetermined time standards involve the use of published data.

- → True
- False

True / False	*TB 07-39 Predetermined time standards involve the use of pu...*

860. award: **0.25 points**

TB 07-40 Tables of predetermined element times make work me...
Tables of predetermined element times make work measurement studies straightforward.

- True
- → False

True / False	*TB 07-40 Tables of predetermined element times make work me...*

861. award: **0.25 points**

TB 07-41 Methods-time measurement (MTM) requires analysts t...
Methods-time measurement (MTM) requires analysts to collect multiple observations of the times to complete every elementary motion in a job task.

- True
- → False

True / False	*TB 07-41 Methods-time measurement (MTM) requires analysts t...*

862. award: **0.25 points**

TB 07-42 Work sampling involves the use of some method of r...
Work sampling involves the use of some method of randomizing the observations.

- → True
- False

True / False	*TB 07-42 Work sampling involves the use of some method of r...*

863. award: **0.25 points**

TB 07-43 An advantage of work sampling, compared to a stopw...
An advantage of work sampling, compared to a stopwatch time study, is that observations are spread out over a period of time in work sampling.

→ ○ True
○ False

True / False	*TB 07-43 An advantage of work sampling, compared to a stopw...*

864. award: **0.25 points**

TB 07-44 A work sampling study does not involve measuring t...
A work sampling study does not involve measuring the amount of time to complete different categories of work activity.

→ ○ True
○ False

True / False	*TB 07-44 A work sampling study does not involve measuring t...*

865. award: **0.25 points**

TB 07-45 Work sampling provides a detailed elemental breakd...
Work sampling provides a detailed elemental breakdown of a task for purposes of establishing reliable time standards.

○ True
→ ○ False

True / False	*TB 07-45 Work sampling provides a detailed elemental breakd...*

866. award: **0.25 points**

TB 07-46 Time-based pay compensates employees according to ...
Time-based pay compensates employees according to the combination of the time the employee has worked and the amount of output they produce.

○ True
→ ○ False

True / False	*TB 07-46 Time-based pay compensates employees according to ...*

867. award: **0.25 points**

TB 07-47 Output-based pay compensates employees according t...
Output-based pay compensates employees according to the amount of output they produce during a pay period, thereby tying pay directly to performance.

→ ○ True
○ False

True / False	*TB 07-47 Output-based pay compensates employees according t...*

868. award: **0.25 points**

TB 07-48 Output-based compensation approaches are more wide...
Output-based compensation approaches are more widely used by factories than are time-based approaches.

- True
- → False

True / False	*TB 07-48 Output-based compensation approaches are more wide...*

869. award: **0.25 points**

TB 07-49 Piece rate pays are a common type of time-based co...
Piece rate pays are a common type of time-based compensation approaches.

- True
- → False

True / False	*TB 07-49 Piece rate pays are a common type of time-based co...*

870. award: **0.25 points**

TB 07-50 Although quality may be considered in compensation...
Although quality may be considered in compensation, quantity is always more important.

- True
- → False

True / False	*TB 07-50 Although quality may be considered in compensation...*

871. award: **0.25 points**

TB 07-51 A pay system that rewards workers who undergo trai...
A pay system that rewards workers who undergo training to increase their skills is called a "skill/knowledge bonus plan".

- → True
- False

True / False	*TB 07-51 A pay system that rewards workers who undergo trai...*

872. award: **0.25 points**

TB 07-52 Gain sharing and profit sharing are equivalent...
"Gain sharing" and "profit sharing" are equivalent types of bonus/incentive plans that focuses exclusively on individual output.

- True
- → False

True / False	*TB 07-52 Gain sharing and profit sharing are equivalent...*

873. award: **0.25 points**

TB 07-53 Minimum wage legislation makes piece-rate compensa...

Minimum wage legislation makes piece-rate compensation plans somewhat challenging to implement.

→ ○ True
○ False

True / False	*TB 07-53 Minimum wage legislation makes piece-rate compensa...*

874. award: **0.25 points**

TB 07-54 Which of the following is not an objective of job ...

Which of the following is not an objective of job design?

○ productivity
○ safety
○ quality of work life
→ ○ line balancing
○ all of the choices are objectives

Multiple Choice	*TB 07-54 Which of the following is not an objective of job ...*

875. award: **0.25 points**

TB 07-55 The design of work systems involves all but which ...

The design of work systems involves all but which of the following?

○ work measurement
○ job design
○ compensation
→ ○ process analysis
○ all of the choices are involved

Multiple Choice	*TB 07-55 The design of work systems involves all but which ...*

876. award: **0.25 points**

TB 07-56 Which of the following is a major advantage of job...

Which of the following is a major advantage of job specialization in business?

○ increased motivation
○ increased opportunity for advancement
○ increased opportunity for self-fulfillment
→ ○ increased proficiency
○ increased job enrichment

Multiple Choice	*TB 07-56 Which of the following is a major advantage of job...*

877. award: **0.25 points**

TB 07-57 Which of the following is not generally considered...

Which of the following is not generally considered an advantage of specialization?

- high productivity
- low wage costs
- ease of training employees
- → low equipment costs
- all of the choices are advantages

Multiple Choice	*TB 07-57 Which of the following is not generally considered...*

878. award: **0.25 points**

TB 07-58 The behavioural approach to job design which invol...

The behavioural approach to job design which involves giving the worker a larger portion of the total task is:

- → job enlargement
- job rotation
- job enrichment
- job involvement
- job enhancement

Multiple Choice	*TB 07-58 The behavioural approach to job design which invol...*

879. award: **0.25 points**

TB 07-59 Which of the following most closely describes job ...

Which of the following most closely describes job enlargement?

- → horizontal loading
- increasing the level of responsibility associated with a job
- rotating workers through a series of jobs to increase their scope of experience
- increasing the amount of workspace assigned to a worker
- assigning two different jobs to the same worker

Multiple Choice	*TB 07-59 Which of the following most closely describes job ...*

880. award: **0.25 points**

TB 07-60 In order to make jobs more interesting, job design...

In order to make jobs more interesting, job designers use all of the following EXCEPT:

- job enlargement
- job rotation
- job enrichment
- → job specialization
- all of these

Multiple Choice	*TB 07-60 In order to make jobs more interesting, job design...*

881. award: **0.25 points**

TB 07-61 The behavioural approach to job design which invol...

The behavioural approach to job design which involves an increase in responsibility for planning and coordinating tasks is:

- job enlargement
- job rotation
- → job enrichment
- job involvement
- job enhancement

Multiple Choice	*TB 07-61 The behavioural approach to job design which invol...*

882. award: **0.25 points**

TB 07-62 Which of the following is not a potential benefit ...

Which of the following is not a potential benefit of the use of self-directed teams?

- Improved responsiveness to problems
- higher productivity
- greater worker satisfaction
- → expanded responsibilities for middle managers

Multiple Choice	*TB 07-62 Which of the following is not a potential benefit ...*

883. award: **0.25 points**

TB 07-63 Focusing on how a job is done and attempting to ma...

Focusing on how a job is done and attempting to make it more efficient describes:

- work measurement
- Gantt charts
- → methods analysis
- job evaluation
- job enlargement

Multiple Choice	*TB 07-63 Focusing on how a job is done and attempting to ma...*

884. award: **0.25 points**

TB 07-64 The chart used to review the overall sequence of a...

The chart used to review the overall sequence of an operation by focusing on either the movements of the operator or the flow of materials is called a:

- Simo chart
- worker-machine chart
- worker-materials chart
- → process chart
- multi-activity chart

Multiple Choice	*TB 07-64 The chart used to review the overall sequence of a...*

885. award: **0.25 points**

TB 07-65 The methods analysis chart which describes the ove...

The methods analysis chart which describes the overall sequence of operations, including storages, delays, and inspections is a(n):

→ ○ process chart
○ worker-machine chart
○ MTM table
○ simultaneous motion (simo) chart
○ efficiency/time-of-day chart

Multiple Choice	*TB 07-65 The methods analysis chart which describes the ove...*

886. award: **0.25 points**

TB 07-66 Experienced methods analysts generate improvement ...

Experienced methods analysts generate improvement ideas in a process or job by asking all of the following questions EXCEPT:

○ Can travel distances be shortened?
→ ○ Can an operation be added?
○ Can similar activities be grouped?
○ Can additional equipment be helpful?
○ Can the sequence of operations be changed?

Multiple Choice	*TB 07-66 Experienced methods analysts generate improvement ...*

887. award: **0.25 points**

TB 07-67 Methods analysis focuses on which aspect of job de...

Methods analysis focuses on which aspect of job design?

○ behavioural aspects
→ ○ efficiency aspects
○ pay levels
○ all of the choices
○ none of the choices

Multiple Choice	*TB 07-67 Methods analysis focuses on which aspect of job de...*

888. award: **0.25 points**

TB 07-68 The chart used to focus on busy and idle portions ...

The chart used to focus on busy and idle portions of a work cycle is a(n):

→ ○ worker-machine chart
○ Gantt chart
○ Simo-chart
○ idle chart
○ process chart

Multiple Choice	*TB 07-68 The chart used to focus on busy and idle portions ...*

889. award: **0.25 points**

TB 07-69 The methods analysis chart which describes the por...

The methods analysis chart which describes the portions of a work cycle during which an operator and equipment are busy or idle is a(n):

- Process chart
- → worker-machine chart
- gang process chart
- simultaneous motion (simo) chart
- efficiency/time-of-day chart

Multiple Choice	*TB 07-69 The methods analysis chart which describes the por...*

890. award: **0.25 points**

TB 07-70 Which of the following is not one of the technique...

Which of the following is not one of the techniques used in motion study analysis?

- motion economy principles
- → job enrichment technique
- micro-motion (slow-motion video) study
- analysis of elementary motions
- simultaneous hands motion chart

Multiple Choice	*TB 07-70 Which of the following is not one of the technique...*

891. award: **0.25 points**

TB 07-71 The methods analysis chart which describes the mov...

The methods analysis chart which describes the movements of both hands at the same time is a(n):

- process chart
- worker-machine chart
- gang process chart
- → simultaneous motion (simo) chart
- efficiency/time-of-day chart

Multiple Choice	*TB 07-71 The methods analysis chart which describes the mov...*

892. award: **0.25 points**

TB 07-72 Which of the following is not related to working c...

Which of the following is not related to working conditions considered in work system design?

- ventilation
- → seniority and experience levels
- noise and vibrations
- illumination
- all of the conditions are considered

Multiple Choice	*TB 07-72 Which of the following is not related to working c...*

893. award: **0.25 points**

TB 07-73 Which of the following is not true about illuminat...

Which of the following is not true about illumination?

- The more detailed the work, the higher the level required.
- Amount of glare and contrast are important considerations.
- → High levels are generally preferred in all areas.
- High levels in stairways are important for safety.
- all of the choices are true

Multiple Choice	*TB 07-73 Which of the following is not true about illuminat...*

894. award: **0.25 points**

TB 07-74 Ergonomics tries to remove all of the following EX...

Ergonomics tries to remove all of the following EXCEPT:

- awkward reaching and bending.
- forceful gripping of tools.
- → travelling long distances.
- endless repetition of motions.
- all of the choices are correct

Multiple Choice	*TB 07-74 Ergonomics tries to remove all of the following EX...*

895. award: **0.25 points**

TB 07-75 Which of the following is not a type of work measu...

Which of the following is not a type of work measurement?

- stopwatch time study
- work sampling
- → simultaneous motion study
- predetermined element (published) times

Multiple Choice	*TB 07-75 Which of the following is not a type of work measu...*

896. award: **0.25 points**

TB 07-76 An increase in the desired confidence level has wh...

An increase in the desired confidence level has what effect on the number of observations necessary in a time study?

- → increases
- decreases
- unaffected
- may increase or decrease, depending on the sample standard deviation
- impossible to say without additional information

Multiple Choice	*TB 07-76 An increase in the desired confidence level has wh...*

897. award: **0.25 points**

TB 07-77 In a stopwatch time study, the number of cycles th...

In a stopwatch time study, the number of cycles that must be timed is a function of:

- the variability of observed times
- the desired accuracy for the estimated job time
- the desired level of confidence for the estimated job time
- → all of the choices
- none of the choices

Multiple Choice	*TB 07-77 In a stopwatch time study, the number of cycles th...*

898. award: **0.25 points**

TB 07-78 In a stopwatch time study, the average time it tak...

In a stopwatch time study, the average time it takes a given worker to perform a task a certain number of times is the:

- → observed time
- normal time
- standard time
- allowance time
- performance rating time

Multiple Choice	*TB 07-78 In a stopwatch time study, the average time it tak...*

899. award: **0.25 points**

TB 07-79 In a stopwatch time study, adjusting the observed ...

In a stopwatch time study, adjusting the observed time by the performance rating of the observed worker results in the:

- observed time
- → normal time
- standard time
- allowance time
- performance rating time.

Multiple Choice	*TB 07-79 In a stopwatch time study, adjusting the observed ...*

900. award: **0.25 points**

TB 07-80 A job had an observed time of four minutes, a perf...

A job had an observed time of four minutes, a performance rating of .80, and an allowance factor that was 20 percent of job time. Normal time for the job in minutes is:

- → 3.20
- 3.84
- 4.00
- 4.80
- 5.00

Multiple Choice	*TB 07-80 A job had an observed time of four minutes, a perf...*

901. award: **0.25 points**

TB 07-81 When performing a time study, normal time is cal...

When performing a time study, "normal time" is calculated by converting the observed time into the time an "average" worker would require working at an acceptable pace by using which of the following?

- allowance factors
- methods-time measurements (MTM)
- methods analysis
- → performance ratings
- summing basic elementary motions

Multiple Choice	*TB 07-81 When performing a time study, normal time is cal...*

902. award: **0.25 points**

TB 07-82 In a stopwatch time study, adjusting the normal ti...

In a stopwatch time study, adjusting the normal time by an allowance factor for normal delays and interruptions results in the:

- observed time
- normal time
- → standard time
- allowance time
- performance rating time

Multiple Choice	*TB 07-82 In a stopwatch time study, adjusting the normal ti...*

903. award: **0.25 points**

TB 07-83 A job had an observed time of 10 minutes, a perfor...

A job had an observed time of 10 minutes, a performance rating of .90, and an allowance proportion of 20 percent of job time. Twenty-five cycles were timed. Standard time for the job in minutes is:

- 10.0
- → 10.8
- 12.5
- 15.0
- none of these

Multiple Choice	*TB 07-83 A job had an observed time of 10 minutes, a perfor...*

904. award: **0.25 points**

TB 07-84 A job has a normal time of 12 minutes, a performan...

A job has a normal time of 12 minutes, a performance rating of.80, and an allowance proportion of 20 percent of the workday. The standard time for this job in minutes is:

- 11.52
- 12
- 14.4
- → 15
- none of these

Multiple Choice	*TB 07-84 A job has a normal time of 12 minutes, a performan...*

905. award: **0.25 points**

TB 07-85 Which of the following is not an accurate statemen...

Which of the following is not an accurate statement concerning the use of predetermined element times for work measurement?

- Analysts need to break jobs down into their basic elements.
- → They provide better accuracy than stopwatch time studies.
- They rely on published data of element times based on extensive research.
- All of the choices are accurate.

Multiple Choice	*TB 07-85 Which of the following is not an accurate statemen...*

906. award: **0.25 points**

TB 07-86 Predetermined element times are derived from:

Predetermined element times are derived from:

- judgmental methods
- → research of basic element motions
- allowance factors multiplied by standard times
- standard allowance proportions
- recalibration of standard times

Multiple Choice	*TB 07-86 Predetermined element times are derived from:*

907. award: **0.25 points**

TB 07-87 A technique for estimating the proportion of time ...

A technique for estimating the proportion of time a worker spends on various activities is:

- stopwatch time study
- standard elemental (historical) times
- simultaneous motion study
- predetermined element (published) times
- → work sampling

Multiple Choice	*TB 07-87 A technique for estimating the proportion of time ...*

908. award: **0.25 points**

TB 07-88 The technique which can be used to estimate the pe...

The technique which can be used to estimate the percentage of time a worker or piece of equipment is idle is:

- MTM
- → work sampling
- methods analysis
- micro-motion study
- none of these

Multiple Choice	*TB 07-88 The technique which can be used to estimate the pe...*

909. award: **0.25 points**

TB 07-89 In work sampling, observations should be taken:
In work sampling, observations should be taken:

- at the same time each day
- within a short period of time
- → at randomly determined times
- once every hour
- once every day

Multiple Choice	*TB 07-89 In work sampling, observations should be taken:*

910. award: **0.25 points**

TB 07-90 Which of the following is not an advantage of work...
Which of the following is not an advantage of work sampling compared to stopwatch time study?

- There is little or no disruption of work.
- It is less susceptible to short-term fluctuations.
- Workers are less resentful.
- It is less costly and less time-consuming.
- → It is better suited for short, repetitive tasks.

Multiple Choice	*TB 07-90 Which of the following is not an advantage of work...*

911. award: **0.25 points**

TB 07-91 Which sample proportion will require the largest n...
Which sample proportion will require the largest number of work sampling observations?

- .05
- .25
- → .50
- .75
- .95

Multiple Choice	*TB 07-91 Which sample proportion will require the largest n...*

912. award: **0.25 points**

TB 07-92 What will be the effect of increasing the maximum ...
What will be the effect of increasing the maximum acceptance error proportion on sample size in work sampling?

- increase in the number of observations needed
- → decrease in the number of observations needed
- no effect on sample size
- sometimes increase and sometimes decrease in the sample size, depending on the analyst
- impossible to say without additional information

Multiple Choice	*TB 07-92 What will be the effect of increasing the maximum ...*

913. award: **0.25 points**

TB 07-93 Which of the following is not a characteristic of ...

Which of the following is not a characteristic of time-based compensation approaches?

- relatively stable labour costs
- easier to administer than output-based plans
- stable pay for employees
- simpler wage computations than output-based plans
- → more computations and paperwork than output-based plans

Multiple Choice	*TB 07-93 Which of the following is not a characteristic of ...*

A Methods and Measurements Analyst needs to develo...

A Methods and Measurements Analyst needs to develop a time standard for a certain task. In a preliminary study, he observed one of his employees perform this task five times, with the following results:

OBSERVATION	1	2	3	4	5
TIME (SECONDS)	84	76	80	84	76

Section Break	*A Methods and Measurements Analyst needs to develo...*

914. award: **0.25 points**

TB 07-94 What is the observed time (OT) for this task?

What is the observed time (OT) for this task?

- → 80 seconds
- 84 seconds
- 160 seconds
- 240 seconds
- 400 seconds

Multiple Choice	*TB 07-94 What is the observed time (OT) for this task?*

915. award: **0.25 points**

TB 07-95 What is the normal time (NT) for this task if the ...

What is the normal time (NT) for this task if the employee worked at a twenty-five percent faster pace than is average?

- 80 seconds
- 96 seconds
- → 100 seconds
- 120 seconds
- 125 seconds

Multiple Choice	*TB 07-95 What is the normal time (NT) for this task if the ...*

916. award: **0.25 points**

TB 07-96 What is the standard time (ST) for this task if th...

What is the standard time (ST) for this task if the employee worked at a twenty-five percent faster pace than is average and an allowance of twenty percent of the workday is used?

- 80 seconds
- 96 seconds
- 100 seconds
- 120 seconds
- → 125 seconds

Multiple Choice	*TB 07-96 What is the standard time (ST) for this task if th...*

917. award: **0.25 points**

TB 07-97 What is the standard time (ST) for this task if th...

What is the standard time (ST) for this task if the employee worked at a twenty-five percent faster pace than is average and an allowance of twenty percent of job time is used?

- 80 seconds
- 96 seconds
- 100 seconds
- → 120 seconds
- 125 seconds

Multiple Choice	*TB 07-97 What is the standard time (ST) for this task if th...*

918. award: **0.25 points**

TB 07-98 How many observations should be made if the analys...

How many observations should be made if the analyst wants to be 99.74 percent confident that the maximum error in the observed time is two seconds? Assume that the standard deviation of task times is 4 seconds.

- 5
- 6
- 25
- → 36
- 49

Multiple Choice	*TB 07-98 How many observations should be made if the analys...*

The owner of Kat Motel wants to develop a time sta...

The owner of Kat Motel wants to develop a time standard for the task of cleaning a cat cage. In a preliminary study, she observed one of her employees perform this task six times, with the following results:

OBSERVATION	1	2	3	4	5	6
TIME (SECONDS)	99	87	90	81	93	90

Section Break	*The owner of Kat Motel wants to develop a time sta...*

919. award: **0.25 points**

TB 07-99 What is the observed time (OT) for this task?
What is the observed time (OT) for this task?

- 81 seconds
- → 90 seconds
- 99 seconds
- 108 seconds
- 540 seconds

Multiple Choice	*TB 07-99 What is the observed time (OT) for this task?*

920. award: **0.25 points**

TB 07-100 What is the normal time (NT) for this task if the ...
What is the normal time (NT) for this task if the employee worked at a fifty percent faster pace than is average?

- 45 seconds
- 60 seconds
- 90 seconds
- → 135 seconds
- 180 seconds

Multiple Choice	*TB 07-100 What is the normal time (NT) for this task if the ...*

921. award: **0.25 points**

TB 07-101 What is the standard time (ST) for this task if th...
What is the standard time (ST) for this task if the employee worked at a fifty percent faster pace than is average, and an allowance of twenty percent of job time is used?

- 90 seconds
- 99 seconds
- 100 seconds
- → 162 seconds
- 150 seconds

Multiple Choice	*TB 07-101 What is the standard time (ST) for this task if th...*

922. award: **0.25 points**

TB 07-102 What is the standard time (ST) for this task if th...
What is the standard time (ST) for this task if the employee worked at a fifty percent faster pace than is average, and an allowance of ten percent of the workday is used?

- 90 seconds
- 99 seconds
- 100 seconds
- 168.8 seconds
- → 150 seconds

Multiple Choice	*TB 07-102 What is the standard time (ST) for this task if th...*

923. award: **0.25 points**

TB 07-103 How many observations should be made if she wants ...

How many observations should be made if she wants to be 95.44 percent confident that the maximum error in the observed time is two seconds? The standard deviation of task times is 6 seconds.

- 5
- 6
- 30
- → 36
- 49

Multiple Choice	*TB 07-103 How many observations should be made if she wants ...*

A Methods and Measurements Analyst for Timepiece, ...

A Methods and Measurements Analyst for Timepiece, Inc. needs to develop a time standard for the task of attaching a watch to a wristband. In a preliminary study, he observed one of his employees perform this task five times, with the following results:

OBSERVATION	1	2	3	4	5
TIME (SECONDS)	27	19	20	21	13

Section Break	*A Methods and Measurements Analyst for Timepiece, ...*

924. award: **0.25 points**

TB 07-104 What is the observed time (OT) for this task?

What is the observed time (OT) for this task?

- → 20 seconds
- 27 seconds
- 46 seconds
- 66 seconds
- 100 seconds

Multiple Choice	*TB 07-104 What is the observed time (OT) for this task?*

925. award: **0.25 points**

TB 07-105 What is the normal time (NT) for this task if the ...

What is the normal time (NT) for this task if the employee worked at a twenty percent faster pace than is average?

- 16.7 seconds
- 20 seconds
- → 24 seconds
- 25 seconds
- 100 seconds

Multiple Choice	*TB 07-105 What is the normal time (NT) for this task if the ...*

926. award: **0.25 points**

TB 07-106 What is the standard time (ST) for this task if th...

What is the standard time (ST) for this task if the employee worked at a twenty percent faster pace than is average, and an allowance of twenty percent of the workday is used?

- 20 seconds
- 24 seconds
- 25 seconds
- 28.8 seconds
- → 30 seconds

Multiple Choice	*TB 07-106 What is the standard time (ST) for this task if th...*

927. award: **0.25 points**

TB 07-107 What is the standard time (ST) for this task if th...

What is the standard time (ST) for this task if the employee worked at a twenty percent faster pace than is average, and an allowance of twenty percent of job time is used?

- 4.5 seconds
- 5 seconds
- 20 seconds
- → 28.8 seconds
- 100 seconds

Multiple Choice	*TB 07-107 What is the standard time (ST) for this task if th...*

928. award: **0.25 points**

TB 07-108 How many observations should be made if he wants t...

How many observations should be made if he wants to be 95.44 percent confident that the maximum error in the observed time is one second? The standard deviation of task times is 5 seconds.

- 5
- 10
- 25
- → 100
- 121

Multiple Choice	*TB 07-108 How many observations should be made if he wants t...*

A Methods and Measurement Analyst wants to develop...

A Methods and Measurement Analyst wants to develop a time standard for a certain task. In a preliminary study, he observed one employee perform the task six times with an average of 20 seconds and a standard deviation of 2 seconds.

Section Break	*A Methods and Measurement Analyst wants to develop...*

929. award: **0.25 points**

TB 07-109 What is the normal time (NT) for this task if the ...

What is the normal time (NT) for this task if the employee worked at a twenty percent faster pace than is average?

- 4 seconds
- 16.7 seconds
- 20 seconds
- → 24 seconds
- 100 seconds

Multiple Choice	*TB 07-109 What is the normal time (NT) for this task if the ...*

930. award: **0.25 points**

TB 07-110 What is the standard time (ST) for this task if th...

What is the standard time (ST) for this task if the employee worked at a twenty percent faster pace than is average, and an allowance of twenty-five percent of the workday is used?

- 20 seconds
- 25 seconds
- 26.7 seconds
- 30 seconds
- → 32 seconds

Multiple Choice	*TB 07-110 What is the standard time (ST) for this task if th...*

931. award: **0.25 points**

TB 07-111 What is the standard time (ST) for this task if th...

What is the standard time (ST) for this task if the employee worked at a twenty percent faster pace than is average, and an allowance of twenty-five percent of job time is used?

- 20 seconds
- 25 seconds
- 26.7 seconds
- → 30 seconds
- 32 seconds

Multiple Choice	*TB 07-111 What is the standard time (ST) for this task if th...*

932. award: **0.25 points**

TB 07-112 How many observations should be made if he wants t...

How many observations should be made if he wants to be 95.44 percent confident that the maximum error in the observed time is one second?

- 3
- 4
- 13.3
- → 16
- 25

Multiple Choice	*TB 07-112 How many observations should be made if he wants t...*

The owner of Touchdown Sports Bar wants to develop...
The owner of Touchdown Sports Bar wants to develop a time standard for the task of mixing a specialty cocktail. In a preliminary study, he observed one of his bartenders perform this task seven times with an average of 90 seconds and a standard deviation of 5 seconds.

Section Break	*The owner of Touchdown Sports Bar wants to develop...*

933. award: **0.25 points**

TB 07-113 What is the normal time (NT) for this task if the ...
What is the normal time (NT) for this task if the bartender worked at a twenty percent faster pace than is average?

- 75 seconds
- 90 seconds
- → 108 seconds
- 110 seconds
- 112.5 seconds

Multiple Choice	*TB 07-113 What is the normal time (NT) for this task if the ...*

934. award: **0.25 points**

TB 07-114 What is the standard time (ST) for this task if th...
What is the standard time (ST) for this task if the bartender worked at a twenty percent faster pace than is average, and an allowance of twenty percent of the workday is used?

- 112.5 seconds
- 120 seconds
- → 135 seconds
- 144 seconds
- 150 seconds

Multiple Choice	*TB 07-114 What is the standard time (ST) for this task if th...*

935. award: **0.25 points**

TB 07-115 What is the standard time (ST) for this task if th...
What is the standard time (ST) for this task if the bartender worked at a twenty percent faster pace than is average, and an allowance of ten percent of job time is used?

- 135 seconds
- 123.8 seconds
- → 118.8 seconds
- 120 seconds
- 112.5 seconds

Multiple Choice	*TB 07-115 What is the standard time (ST) for this task if th...*

936. award: **0.25 points**

TB 07-116 How many observations should be made if he wants t...

How many observations should be made if he wants to be 95.44 percent confident that the maximum error in the observed time is one second?

- 64
- 86
- → 100
- 144
- 169

Multiple Choice	*TB 07-116 How many observations should be made if he wants t...*

A Methods and Measurements Analyst for Digital Dev...

A Methods and Measurements Analyst for Digital Devices needs to develop a time standard for the task of assembling a computer mouse. In a preliminary study, she observed one of her employees perform this task six times with the following results:

OBSERVATION	1	2	3	4	5	6
TIME (SECONDS)	46	38	40	34	42	40

Section Break	*A Methods and Measurements Analyst for Digital Dev...*

937. award: **0.25 points**

TB 07-117 What is the observed time (OT) for this task?

What is the observed time (OT) for this task?

- 34 seconds
- → 40 seconds
- 46 seconds
- 48 seconds
- 240 seconds

Multiple Choice	*TB 07-117 What is the observed time (OT) for this task?*

938. award: **0.25 points**

TB 07-118 What is the normal time (NT) for this task if the ...

What is the normal time (NT) for this task if the employee worked at a 20% faster pace than is average?

- 8 seconds
- 32 seconds
- 40 seconds
- → 48 seconds
- 200 seconds

Multiple Choice	*TB 07-118 What is the normal time (NT) for this task if the ...*

939. award: **0.25 points**

TB 07-119 What is the standard time (ST) for this task if th...

What is the standard time (ST) for this task if the employee worked at a 20% faster pace than is average and an allowance of 25% of the workday is used?

- 40 seconds
- 50 seconds
- 53.3 seconds
- 60 seconds
- → 64 seconds

Multiple Choice	*TB 07-119 What is the standard time (ST) for this task if th...*

940. award: **0.25 points**

TB 07-120 What is the standard time (ST) for this task if th...

What is the standard time (ST) for this task if the employee worked at a 20% faster pace than is average and an allowance of 25% of job time is used?

- 40 seconds
- 50 seconds
- 53.3 seconds
- → 60 seconds
- 64 seconds

Multiple Choice	*TB 07-120 What is the standard time (ST) for this task if th...*

941. award: **0.25 points**

TB 07-121 How many observations should be made if she wants ...

How many observations should be made if she wants to be 0.8664 confident that the maximum error in the observed time is 0.5 second? Assume that the standard deviation of the task time is 4 seconds.

- 10
- 12
- 120
- → 144
- 169

Multiple Choice	*TB 07-121 How many observations should be made if she wants ...*

The manager of Lawn and Garden Services would like...

The manager of Lawn and Garden Services would like to estimate the proportion of her employees' times spent performing various gardening or lawn care activities. She has made 400 random observations of a typical worker, with the following results:

ACTIVITY	NO. OF TIMES OBSERVED
Mowing	200
Trimming	80
Raking	40
Miscellaneous	80

Section Break	*The manager of Lawn and Garden Services would like...*

942. award: **0.25 points**

TB 07-122 What is the most likely true proportion of time sp...

What is the most likely true proportion of time spent mowing?

- 0
- .1
- .2
- → .5
- 1

Multiple Choice	*TB 07-122 What is the most likely true proportion of time sp...*

943. award: **0.25 points**

TB 07-123 What is the probability that the true proportion o...

What is the probability that the true proportion of time spent mowing is exactly equal to the sample proportion?

- → 0
- .1
- .2
- .5
- 1

Multiple Choice	*TB 07-123 What is the probability that the true proportion o...*

944. award: **0.25 points**

TB 07-124 How confident can the manager be that the true pro...

How confident can the manager be that the true proportion of time spent mowing is between.45 and.55?

- 90 percent
- 95 percent
- → 95.44 percent
- 99 percent
- 99.7 percent

Multiple Choice	*TB 07-124 How confident can the manager be that the true pro...*

945. award: **0.25 points**

TB 07-125 Between what limits can the manager be 68.26 perce...

Between what limits can the manager be 68.26 percent confident the true proportion of time spent mowing is?

- 0 and .683
- → .475 and .525
- .45 and .55
- .425 and .575
- .4 and .6

Multiple Choice	*TB 07-125 Between what limits can the manager be 68.26 perce...*

946. award: **0.25 points**

TB 07-126 If the manager wants to be 95.44 percent confident...

If the manager wants to be 95.44 percent confident that the true proportion of time spent mowing is within.02 (plus or minus) of the sample proportion, what should be her revised sample size?

- 400
- 1,000
- 1,600
- 2,000
- → 2,500

Multiple Choice	*TB 07-126 If the manager wants to be 95.44 percent confident...*

947. award: **0.25 points**

TB 07-127 An analyst has observed 28 work cycles, for which ...

An analyst has observed 28 work cycles, for which the average cycle time was five minutes and the performance rating was 1.05. Allowances for the department are 25 percent of job time. What standard time is appropriate for this job?

OT = 5 minutes
PR = 1.05
A = 25 percent
Afjob = 1 + .25 = 1.25

NT = OT x PR = 5 x 1.05 = 5.25 minutes
ST= NT x Afjob = 5.25 x 1.25 = 6.5625 minutes

Short Answer	*TB 07-127 An analyst has observed 28 work cycles, for which ...*

948. award: **0.25 points**

TB 07-128 A time study of a job produced the following: aver...

A time study of a job produced the following: average cycle time = 1.5 minutes, performance rating = 1.15. Allowances are 18 percent of the work day (480 minutes). Determine the standard time for this job.

OT = 1.5 minutes
PR = 1.15
A = 18 percent

NT OT x PR=1.5 x 1.15=1.725 minutes
ST=NT x AF=1.725 x 1.2195 = 2.104 minutes

$$AFday = \frac{1}{1-.18} = 1.2195$$

Short Answer	*TB 07-128 A time study of a job produced the following: aver...*

949. award: **0.25 points**

TB 07-129 What number of observations would be required in a...

What number of observations would be required in a time study in order to obtain a 95 percent confidence that the average time observed was no more than 0.6 minutes from the true mean, assuming a standard deviation of cycle time of 1.8 minutes?

$$n = \left[\frac{[z(s)]}{a}\right] \quad 2 = \left[\frac{[1.96(1.8)]}{0.6}\right] \quad 2 = 34.57, \text{ or } 35 \text{ observations}$$

Short Answer	*TB 07-129 What number of observations would be required in a...*

950. award: **0.25 points**

TB 07-130 An initial time study resulted in an average obser...

An initial time study resulted in an average observed time of 2.2 minutes per cycle, and a standard deviation of 0.3 minutes per cycle. The performance rating was 1.20. What sample size, including the 20 observations in the initial study, would be necessary to have a confidence of 95.44 percent that the observed time was within 4 percent of the true value?

$$n = \left[\frac{[z(s)]}{a(x)}\right] \quad 2 = \left[\frac{[2.0(0.3)]}{0.4(2.2)}\right] \quad 2 = 46.49, \text{ or } 47 \text{ observations}$$

Short Answer	*TB 07-130 An initial time study resulted in an average obser...*

951. award: **0.25 points**

TB 07-131 A work sampling study is needed that will estimate...

A work sampling study is needed that will estimate the percentage of time a postal clerk spends selling stamps as opposed to other duties. Determine the necessary sample size to estimate that proportion with a confidence of 99.74 percent to within 3 percent, for these cases:

(i) No information is currently available concerning that proportion.
(ii) The proportion is probably no more than 15 percent.

$n = (z/a)^2 [p(1-p)]$

(i) assume p =.50. n = 2,500 observations.
(ii) p =.15, then n = 1,275 observations.

Short Answer	*TB 07-131 A work sampling study is needed that will estimate...*

952. award: **0.25 points**

TB 07-132 A work sampling study of kitchen help is to be des...

A work sampling study of kitchen help is to be designed. The study will be conducted over a nine-day period. The kitchen help works a seven-hour shift. Determine the day, hour, and minute of five observations using the random digits listed below.

Day:	1	8	4	4	1	1	2	3	1	9	0	8	7
Hour:	7	3	8	4	7	9	1	3	2	4	9	6	3
Minute:	71	32	13	74	35	26	87	48	59	50	11	22	13

Arrange observations chronologically.

[Minute readings assume paired digits. Non-corresponding numbers have been omitted.

Day	Hour	Minute	Chronological:	Day	Hour	Minute
8	3	32		1	2	59
1	7	35		1	7	35
1	2	59		8	3	32
9	4	50		8	6	22
8	6	22		9	4	50

Short Answer *TB 07-132 A work sampling study of kitchen help is to be des...*

953. award: **0.25 points**

TB 07-133 A work sampling study of dockworkers must be set u...

A work sampling study of dockworkers must be set up. There will be a large number of random observations. However, for this exercise, determine an observation schedule (arranged chronologically) for six observations. Assume workers are on the docks for eight hours a day, and that the study will be done over a 60-day period. Use the random digits listed below.

Day:	8	2	5	9	9	9	1	2	3	7	6	1	4	0	2	8	2	2
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8
Hour:	1	3	9	6	7	3	5	4	3	2	4	9	7	7	1	3	2	5
Minute:	0	1	2	7	8	9	0	1	2	3	4	5	0	1	2	3	4	5
	3	9	5	0	1	3	2	8	7	3	4	3	5	0	8	3	1	3

Day	Hour	Minute	Chronological:	Day	Hour	Minute
22	3	19		04	7	10
17	5	02		17	5	02
28	4	18		22	3	19
39	3	27		28	4	18
43	7	05		39	3	27
04	7	10		43	7	10

Short Answer *TB 07-133 A work sampling study of dockworkers must be set u...*

Reference

OBSERVATION	1	2	3	4	5	6	7	8
TIME (SECONDS)	17	18	15	14	13	15	16	12

Section Break *Reference*

award:
0.25 points

954.

TB 07-134 What is the observed time for this task?
What is the observed time for this task?

15 seconds

Short Answer *TB 07-134 What is the observed time for this task?*

award:
0.25 points

955.

TB 07-135 If the person observed worked at a pace that is 80...
If the person observed worked at a pace that is 80 percent of normal, what should be the normal time for this task?

12 seconds

Short Answer *TB 07-135 If the person observed worked at a pace that is 80...*

award:
0.25 points

956.

TB 07-136 If the person observed worked at a pace that is 80...
If the person observed worked at a pace that is 80 percent of normal, and if the appropriate allowance for this task is 25 percent of job time, what should be the standard time?

15 seconds

Short Answer *TB 07-136 If the person observed worked at a pace that is 80...*

award:
0.25 points

957.

TB 07-137 If the person observed worked at a pace that is 20...
If the person observed worked at a pace that is 20 percent faster than average, what should be the normal time for this task?

18 seconds

Short Answer *TB 07-137 If the person observed worked at a pace that is 20...*

958. award: **0.25 points**

TB 07-138 If the person observed worked at a pace that is 20...

If the person observed worked at a pace that is 20 percent faster than average, and if the appropriate allowance for this task is 25 percent of the workday, what should be the standard time?

24 seconds

Short Answer	*TB 07-138 If the person observed worked at a pace that is 20...*

959. award: **0.25 points**

TB 07-139 How many observations would be needed to be 95.44%...

How many observations would be needed to be 95.44% confident that the maximum error in the observed time is 1 second? Assume that the standard deviation of the task time is 2 seconds.

16

Short Answer	*TB 07-139 How many observations would be needed to be 95.44%...*

960. award: **0.25 points**

TB 07-140 How many observations would be needed to be 99.74%...

How many observations would be needed to be 99.74% confident that the maximum error is 5% of the observed time? Assume that the standard deviation of the task time is 2 seconds.

64

Short Answer	*TB 07-140 How many observations would be needed to be 99.74%...*

Given the following work sampling data, based upon...

Given the following work sampling data, based upon 100 random observations of a particular worker:

ACTIVITY	NO OF TIMES OBSERVED
A	20
B	50
C	10
Others	20

Section Break	*Given the following work sampling data, based upon...*

961. award: **0.25 points**

TB 07-141 What is the estimated proportion of time this work...

What is the estimated proportion of time this worker spends performing activity A? B? C?

.2;.5;.1

Short Answer	*TB 07-141 What is the estimated proportion of time this work...*

962. award: **0.25 points**

TB 07-142 For a confidence level of 86.64%, what is the maxi...

For a confidence level of 86.64%, what is the maximum error of the estimate for activity A? B? C?

.060;.075;.045

Short Answer	*TB 07-142 For a confidence level of 86.64%, what is the maxi...*

963. award: **0.25 points**

TB 07-143 For a confidence level of 95.44% and a maximum err...

For a confidence level of 95.44% and a maximum error of.04, what should be the sample size for estimating the proportion of time spent performing activity A? B? C?

400; 625; 225

Short Answer	*TB 07-143 For a confidence level of 95.44% and a maximum err...*

964. award: **0.25 points**

TB 07S-01 If the task is short and somewhat routine; a modes...

If the task is short and somewhat routine; a modest amount of improvement occurs during the first few repetitions.

→ ○ True
○ False

True / False	*TB 07S-01 If the task is short and somewhat routine; a modes...*

965. award: **0.25 points**

TB 07S-02 When the task is fairly complex and has a longer d...

When the task is fairly complex and has a longer duration, improvement will occur over a larger number of repetitions.

→ ○ True
○ False

True / False	*TB 07S-02 When the task is fairly complex and has a longer d...*

966. award: **0.25 points**

TB 07S-03 Learning curves have little relevance for planning...
Learning curves have little relevance for planning or scheduling of routine activities.

→ ○ True
○ False

True / False	*TB 07S-03 Learning curves have little relevance for planning...*

967. award: **0.25 points**

TB 07S-04 Learning curves generally apply to situations in w...
Learning curves generally apply to situations in which there is a high degree of human involvement, and tasks are fairly repetitive.

→ ○ True
○ False

True / False	*TB 07S-04 Learning curves generally apply to situations in w...*

968. award: **0.25 points**

TB 07S-05 Learning curves are mostly relevant for routine, r...
Learning curves are mostly relevant for routine, repetitive activities.

○ True
→ ○ False

True / False	*TB 07S-05 Learning curves are mostly relevant for routine, r...*

969. award: **0.25 points**

TB 07S-06 According to learning curve theory, every doubling...
According to learning curve theory, every doubling of total output will produce a constant percentage decrease in time per unit.

→ ○ True
○ False

True / False	*TB 07S-06 According to learning curve theory, every doubling...*

970. award: **0.25 points**

TB 07S-07 A learning percentage of 95% indicates greater lea...
A learning percentage of 95% indicates greater learning than a percentage of 90%.

○ True
→ ○ False

True / False	*TB 07S-07 A learning percentage of 95% indicates greater lea...*

971. award: **0.25 points**

TB 07S-08 A learning percentage of 98% implies 2% learning.
A learning percentage of 98% implies 2% learning.

→ ○ True
○ False

True / False	*TB 07S-08 A learning percentage of 98% implies 2% learning.*

972. award: **0.25 points**

TB 07S-09 An 80 percent learning curve means that with each ...
An 80 percent learning curve means that with each doubling of units there will be a 20 percent decrease in time per unit.

→ ○ True
○ False

True / False	*TB 07S-09 An 80 percent learning curve means that with each ...*

973. award: **0.25 points**

TB 07S-10 A learning rate of 98% implies an exceptionally ra...
A learning rate of 98% implies an exceptionally rapid rate of improvement.

○ True
→ ○ False

True / False	*TB 07S-10 A learning rate of 98% implies an exceptionally ra...*

974. award: **0.25 points**

TB 07S-11 A learning rate of 77% will produce relatively min...
A learning rate of 77% will produce relatively minor decreases in completion times of the first few repetitions.

○ True
→ ○ False

True / False	*TB 07S-11 A learning rate of 77% will produce relatively min...*

975. award: **0.25 points**

TB 07S-12 A learning rate of 97% will produce minor decrease...
A learning rate of 97% will produce minor decreases in completion times of the first few units.

→ ○ True
○ False

True / False	*TB 07S-12 A learning rate of 97% will produce minor decrease...*

976. award: **0.25 points**

TB 07S-13 The decrease in time between the second and fourth...
The decrease in time between the second and fourth units will be equal to the decrease in time between the first and second units.

- True
- → False

True / False	*TB 07S-13 The decrease in time between the second and fourth...*

977. award: **0.25 points**

TB 07S-14 According to learning curve theory, for certain ki...
According to learning curve theory, for certain kinds of tasks the indirect labour time or cost per unit decreases as the number of units increases.

- True
- → False

True / False	*TB 07S-14 According to learning curve theory, for certain ki...*

978. award: **0.25 points**

TB 07S-15 According to learning curve theory, the time reduc...
According to learning curve theory, the time reduction per unit decreases as the number of units increases.

- → True
- False

True / False	*TB 07S-15 According to learning curve theory, the time reduc...*

979. award: **0.25 points**

TB 07S-16 For an 80% learning curve, if the first unit requi...
For an 80% learning curve, if the first unit requires 10 hours, the second unit will require 8 hours, and the third 6.4 hours.

- True
- → False

True / False	*TB 07S-16 For an 80% learning curve, if the first unit requi...*

980. award: **0.25 points**

TB 07S-17 If an 80% curve is appropriate for a task and the ...
If an 80% curve is appropriate for a task and the first unit takes ten hours, the average time for the first two units would be eight hours.

- True
- → False

True / False	*TB 07S-17 If an 80% curve is appropriate for a task and the ...*

981. award: **0.25 points**

TB 07S-18 Learning curves cannot be used if the labour time ...
Learning curves cannot be used if the labour time for the first unit is unknown.

- True
- → False

True / False	*TB 07S-18 Learning curves cannot be used if the labour time ...*

982. award: **0.25 points**

TB 07S-19 Learning curves are sometimes used for manpower pl...
Learning curves are sometimes used for manpower planning and scheduling.

- → True
- False

True / False	*TB 07S-19 Learning curves are sometimes used for manpower pl...*

983. award: **0.25 points**

TB 07S-20 The learning percentage can be determined from a l...
The learning percentage can be determined from a learning curve table.

- True
- → False

True / False	*TB 07S-20 The learning percentage can be determined from a l...*

984. award: **0.25 points**

TB 07S-21 The learning percentage is the base of the power f...
The learning percentage is the base of the power function that is fitted to the data.

- True
- → False

True / False	*TB 07S-21 The learning percentage is the base of the power f...*

985. award: **0.25 points**

TB 07S-22 One use of learning curves is for negotiated purch...
One use of learning curves is for negotiated purchasing.

- → True
- False

True / False	*TB 07S-22 One use of learning curves is for negotiated purch...*

986. award: **0.25 points**

TB 07S-23 Learning curves sometimes tip upward near the end ...
Learning curves sometimes tip upward near the end of a job.

→ ○ True
○ False

True / False	*TB 07S-23 Learning curves sometimes tip upward near the end ...*

987. award: **0.25 points**

TB 07S-24 Projections based on learning curves should be tre...
Projections based on learning curves should be treated as approximations.

→ ○ True
○ False

True / False	*TB 07S-24 Projections based on learning curves should be tre...*

988. award: **0.25 points**

TB 07S-25 Improvements in task times may be caused in part b...
Improvements in task times may be caused in part by increases in indirect labour costs.

→ ○ True
○ False

True / False	*TB 07S-25 Improvements in task times may be caused in part b...*

989. award: **0.25 points**

TB 07S-26 The learning curve is a basic tool for mass produc...
The learning curve is a basic tool for mass production type activities because it can deal with large volumes of output.

○ True
→ ○ False

True / False	*TB 07S-26 The learning curve is a basic tool for mass produc...*

990. award: **0.25 points**

TB 07S-27 Learning curves are used primarily for mass produc...
Learning curves are used primarily for mass production applications.

○ True
→ ○ False

True / False	*TB 07S-27 Learning curves are used primarily for mass produc...*

991. award: **0.25 points**

TB 07S-28 The fact that human activities typically improve w...

The fact that human activities typically improve when they are done on a repetitive basis is described by a:

- normal distribution curve
- → learning curve
- binomial distribution curve
- exponential curve
- none of the choices

Multiple Choice	*TB 07S-28 The fact that human activities typically improve w...*

992. award: **0.25 points**

TB 07S-29 Once production is underway and the learning curve...

Once production is underway and the learning curve effect is occurring, successive changes made to the production process will cause the time per unit to:

- continue following the original learning curve without any impact
- → cause a scallop effect
- increase the unit time and result in a higher percentage learning curve
- decrease the unit time and result in a higher percentage learning curve
- decrease the unit time and result in a lower percentage learning curve

Multiple Choice	*TB 07S-29 Once production is underway and the learning curve...*

993. award: **0.25 points**

TB 07S-30 On a log-log graph, learning curves appear as:

On a log-log graph, learning curves appear as:

- upward-curving lines
- downward-curving lines
- → straight lines
- lines which increase at a decreasing rate
- lines which decrease at a decreasing rate

Multiple Choice	*TB 07S-30 On a log-log graph, learning curves appear as:*

994. award: **0.25 points**

TB 07S-31 Which of the following conveys the essence of lear...

Which of the following conveys the essence of learning curves?

- As the number of units produced increase, time per unit increases.
- As the number of units produced decrease, time per unit increases.
- As the number of units produced increase, time per unit remains constant.
- As the number of units produced increase, time per unit doubles.
- → As the number of units produced increase, time per unit decreases.

Multiple Choice	*TB 07S-31 Which of the following conveys the essence of lear...*

995. award: **0.25 points**

TB 07S-32 It took exactly 10 hours to produce the first widg...

It took exactly 10 hours to produce the first widget on a 100 percent learning curve. The second widget will take how many hours to produce?

- 8.0 hours
- → 10.0 hours
- 12.0 hours
- A 100 percent learning curve cannot exist.
- 2 hours

Multiple Choice	*TB 07S-32 It took exactly 10 hours to produce the first widg...*

996. award: **0.25 points**

TB 07S-33 A job is expected to have a 70 percent learning cu...

A job is expected to have a 70 percent learning curve. The first unit has been completed in 20 hours. Accordingly, the second unit can be expected to take approximately how many hours?

- 6
- 9.8
- → 14
- 20
- 34

Multiple Choice	*TB 07S-33 A job is expected to have a 70 percent learning cu...*

997. award: **0.25 points**

TB 07S-34 A job with a 70 percent learning curve required 20...

A job with a 70 percent learning curve required 20 hours for the initial unit. The fourth unit should require approximately how many hours?

- 6
- → 9.8
- 14
- 20
- 34

Multiple Choice	*TB 07S-34 A job with a 70 percent learning curve required 20...*

998. award: **0.25 points**

TB 07S-35 How long would a job with a 70 percent learning cu...

How long would a job with a 70 percent learning curve and a time of 20 hours for the first unit require (approximately, in hours) for the third unit?

- 14
- → 12
- 10
- 7
- 4

Multiple Choice	*TB 07S-35 How long would a job with a 70 percent learning cu...*

999. award: **0.25 points**

TB 07S-36 A job is expected to have a learning curve of 90 p...

A job is expected to have a learning curve of 90 percent. The third unit required 16 hours. The twelfth unit should take approximately how many hours?

- 2
- 4
- 7
- 10
- → 12.5

Multiple Choice	*TB 07S-36 A job is expected to have a learning curve of 90 p...*

1000. award: **0.25 points**

TB 07S-37 A job has an 80 percent learning curve. The second...

A job has an 80 percent learning curve. The second unit required 12 hours to complete. Approximately how many hours will be devoted to the first five units (including those already completed)?

- 26
- 36
- 46
- → 56
- 66

Multiple Choice	*TB 07S-37 A job has an 80 percent learning curve. The second...*

1001. award: **0.25 points**

TB 07S-38 A manager is trying to estimate the appropriate le...

A manager is trying to estimate the appropriate learning curve for a certain job. The manager notes that the first four units had a total time of 30 minutes. Which learning curve would yield approximately this result if the first unit took 10 minutes?

- .70
- → .75
- .80
- .85
- .90

Multiple Choice	*TB 07S-38 A manager is trying to estimate the appropriate le...*

1002. award: **0.25 points**

TB 07S-39 A job has a 70% learning curve. If the first unit ...

A job has a 70% learning curve. If the first unit took 10 hours to complete, the third unit should take roughly how many hours?

- 7
- → 5.5
- 5
- 3.5
- 4.9

Multiple Choice	*TB 07S-39 A job has a 70% learning curve. If the first unit ...*

award:
1003. **4.25 points**

TB 07S-40 A job has an 80% learning curve. If the first unit...
A job has an 80% learning curve. If the first unit took 40 hours to complete, the fourth unit should take roughly how many hours?

- 20
- → 25
- 31
- 35
- 40

Multiple Choice	*TB 07S-40 A job has an 80% learning curve. If the first unit...*

award:
1004. **4.25 points**

TB 07S-41 A job has an 80% learning curve. If the first unit...
A job has an 80% learning curve. If the first unit took 50 hours to complete, the third unit should take roughly how many hours?

- 40
- 36
- → 35
- 32
- 10

Multiple Choice	*TB 07S-41 A job has an 80% learning curve. If the first unit...*

award:
1005. **4.25 points**

TB 07S-42 Unit times for a job exhibit a learning effect. If...
Unit times for a job exhibit a learning effect. If the 2nd unit took 30 hours, and the 4th unit took 20 hours, roughly how many hours would you estimate the 3rd unit took?

- 29
- 27
- 25
- → 24
- 21

Multiple Choice	*TB 07S-42 Unit times for a job exhibit a learning effect. If...*

award:
1006. **4.25 points**

TB 07S-43 A manager is trying to estimate the learning rate ...
A manager is trying to estimate the learning rate for a new job. The first unit took 16 hours, and the fourth unit required about 13 hours. The learning rate is:

- 70%
- 75%
- 80%
- 85%
- → 90%

Multiple Choice	*TB 07S-43 A manager is trying to estimate the learning rate ...*

award:
1007. 0.25 points

TB 07S-44 A job will have a learning rate of 75 percent. If ...

A job will have a learning rate of 75 percent. If the 3rd unit requires 10 hours, the 12th unit should require about this many hours:

→ ○ 5.6
○ 6.5
○ 7.4
○ 8.3
○ 9.2

Multiple Choice	*TB 07S-44 A job will have a learning rate of 75 percent. If ...*

award:
1008. 0.25 points

TB 07S-45 To which worker would learning curves be most appl...

To which worker would learning curves be most applicable?

○ bus driver
○ punchpress operator
○ assembly-line worker
→ ○ auto service mechanic
○ laundromat operator

Multiple Choice	*TB 07S-45 To which worker would learning curves be most appl...*

award:
1009. 0.25 points

TB 07S-46 Learning percentages can be determined from:I. the...

Learning percentages can be determined from:

I. the estimates based on past experience.
II. fitting a power function to past data.
III. fitting a linear function to the log of past data.

○ I only
○ II only
○ II and III only
○ I and II only
→ ○ I, II, and III

Multiple Choice	*TB 07S-46 Learning percentages can be determined from:I. the...*

award:
1010. 0.25 points

TB 07S-47 In which of the following managerial activities wo...

In which of the following managerial activities would learning curves probably be the least useful?

○ negotiated purchasing
○ manpower planning
→ ○ location analysis
○ budgeting
○ pricing new products

Multiple Choice	*TB 07S-47 In which of the following managerial activities wo...*

1011. award: 0.25 points

TB 07S-48 Which one of the following would learning curves p...

Which one of the following would learning curves probably affect the least?

- pricing new products
- negotiated purchasing
- → layout analysis
- scheduling
- labour planning

Multiple Choice	*TB 07S-48 Which one of the following would learning curves p...*

1012. award: 0.25 points

TB 07S-49 Which of the following is not a major caution or c...

Which of the following is not a major caution or criticism of learning curves?

- Learning rates may differ between organizations.
- Projections should be regarded as approximations.
- The base time must be carefully determined.
- The curve may eventually tip upwards.
- → Carryover effects may alter the learning rate.

Multiple Choice	*TB 07S-49 Which of the following is not a major caution or c...*

A company is preparing a bid on a government contr...

A company is preparing a bid on a government contract for 40 units of a certain product. The operations manager estimates the assembly time required for the first two units to be 10.4 hours and 8.8 hours, respectively.

Section Break	*A company is preparing a bid on a government contr...*

1013. award: 0.25 points

TB 07S-50 What is the appropriate learning curve?

What is the appropriate learning curve?

- 70 percent
- 75 percent
- 80 percent
- → 85 percent
- 90 percent

Multiple Choice	*TB 07S-50 What is the appropriate learning curve?*

1014. award: 0.25 points

TB 07S-51 What is the expected time required to produce the ...

What is the expected time required to produce the 40^{th} unit?

- 3.2 hours
- → 4.4 hours
- 5.9 hours
- 3.7 hours
- 2.2 hours

Multiple Choice	*TB 07S-51 What is the expected time required to produce the ...*

1015. award: 5.25 points

TB 07S-52 What is the average time per unit for the 40 units...

What is the average time per unit for the 40 units?

- 4.7 hours
- 6.9 hours
- → 5.6 hours
- 4.5 hours
- 3.6 hours

Multiple Choice	*TB 07S-52 What is the average time per unit for the 40 units...*

1016. award: 5.25 points

TB 07S-53 If the contract is cancelled after the first 20 un...

If the contract is cancelled after the first 20 units, approximately how much of the expected total direct labour will have been expended to that point?

- → 58%
- 55%
- 61%
- 50%
- It is impossible to say without additional information.

Multiple Choice	*TB 07S-53 If the contract is cancelled after the first 20 un...*

1017. award: 5.25 points

TB 07S-54 Approximately how long will it take to produce the...

Approximately how long will it take to produce the 15^{th} unit?

- 4.3 hours
- → 5.5 hours
- 4.7 hours
- 6.9 hours
- 3.4 hours

Multiple Choice	*TB 07S-54 Approximately how long will it take to produce the...*

1018. award: 5.25 points

TB 07S-55 Which unit, if any, will require approximately one...

Which unit, if any, will require approximately one-half the time of the first unit?

- 18^{th} unit
- → 19^{th} unit
- 20^{th} unit
- 21^{st} unit
- 22^{nd} unit

Multiple Choice	*TB 07S-55 Which unit, if any, will require approximately one...*

1019. award: 1.25 points

TB 07S-56 Approximately how long will it take to produce the...
Approximately how long will it take to produce the last ten units?

- 33 hours
- 69 hours
- → 45 hours
- 38 hours
- It is impossible to say without additional information.

Multiple Choice	*TB 07S-56 Approximately how long will it take to produce the...*

A manager wants to analyze the learning curve asso...
A manager wants to analyze the learning curve associated with producing one of his company's products. Accordingly, he has gathered the following data:

UNIT PRODUCED	TIME REQUIRED
Second	5 hours
Fourth	4 hours

Section Break	*A manager wants to analyze the learning curve asso...*

1020. award: 1.25 points

TB 07S-57 What is the learning curve percentage?
What is the learning curve percentage?

- 40%.
- 50%.
- 75%.
- → 80%.
- 90%.

Multiple Choice	*TB 07S-57 What is the learning curve percentage?*

1021. award: 1.25 points

TB 07S-58 How long did it take to produce the first unit?
How long did it take to produce the first unit?

- 5 hours
- 6 hours
- → 6.25 hours
- 6.33 hours
- 6.5 hours

Multiple Choice	*TB 07S-58 How long did it take to produce the first unit?*

1022. award: 4.25 points

TB 07S-59 Approximately how long did it take to produce the ...
Approximately how long did it take to produce the first four units?

- 15 hours
- 16 hours
- 18 hours
- → 20 hours
- 21 hours

Multiple Choice	*TB 07S-59 Approximately how long did it take to produce the ...*

1023. award: 4.25 points

TB 07S-60 Approximately how long will it take to produce the...
Approximately how long will it take to produce the tenth unit?

- 1 hour
- 2 hours
- → 3 hours
- 4 hours
- 5 hours

Multiple Choice	*TB 07S-60 Approximately how long will it take to produce the...*

1024. award: 4.25 points

TB 07S-61 Approximately how long will it take to produce the...
Approximately how long will it take to produce the fifth through tenth units?

- 15 hours
- 16 hours
- 18 hours
- → 20 hours
- 21 hours

Multiple Choice	*TB 07S-61 Approximately how long will it take to produce the...*

1025. award: 4.25 points

TB 07S-62 Assembly of a radar unit has a learning curve of 8...
Assembly of a radar unit has a learning curve of 80 percent. Estimated time to assemble the second unit is 40 hours. Determine approximately how much time will be required for:

(i) the eighth unit
(ii) the first ten units

Determine the time for the initial unit: 40/.8 = 50 hours.

Use table 7S-1:

(i) Unit time for eighth unit: 50 x .512 = 25.6 hours.
(ii) Total time for ten units: 50 x 6.315 = 315.75 hours.

Short Answer	*TB 07S-62 Assembly of a radar unit has a learning curve of 8...*

1026. award: 6.25 points

TB 07S-63 Developing work assignments in a job shop in a cer...

Developing work assignments in a job shop in a certain firm has a learning curve of 80 percent. If the second set of assignments takes 12 minutes, determine the length of time required for the following:

(i) the fifth set
(ii) sets 3, 4, and 5 together

Determine the time for the initial unit: .80(x) = 12, x = 15.

Use Table 7S-1.

(i) Unit time for 5^{th} unit: 15(.596) = 8.94 minutes.
(ii) Cumulative time for 3 through 5: 15(3.738 - 1.800) = 29.07 minutes.

Short Answer *TB 07S-63 Developing work assignments in a job shop in a cer...*

1027. award: 6.25 points

TB 07S-64 A job has a 90 percent learning curve associated w...

A job has a 90 percent learning curve associated with it. The second unit of a 25-unit job had a unit time of 36 minutes. What will the total time be for the entire job?

Determine the time for the initial unit: 90(x) = 36, x = 40.
Using Table 7S-1, the total time will be 40(17.713) = 708.52 minutes, or 11.81 hours, or 11 hours and 48.52 minutes.

Short Answer *TB 07S-64 A job has a 90 percent learning curve associated w...*

1028. award: 6.25 points

TB 07S-65 Sally suspects strongly that there is a learning c...

Sally suspects strongly that there is a learning curve associated with solving problems assigned for operations management. She notes that it took her approximately 33 minutes to solve the first problem and 17 minutes to solve the fifth problem.

(i) Estimate Sally's learning percentage.
(ii) Using your answer from part a, estimate how long it will take Sally to finish the three problems which remain.

(i) T1 (unit factor 5) = T5. Since T1 and T5 are known, solve for the unit factor: 17 min/33 min. = .515. From Table 7S-1, this equates to a learning percentage of approximately 75%.
(ii) Find the time for 6, 7, and 8 using 75 percent and T1 = 33: 33(4.802 - 3.459) = 44.319 minutes.

Short Answer *TB 07S-65 Sally suspects strongly that there is a learning c...*

1029. award: 6.25 points

TB 07S-66 Ron has noted that the first accounting problem he...

Ron has noted that the first accounting problem he did in a set of similar problems took him one hour, and the ninth problem took 24 minutes.

(i) Estimate Ron's learning curve.
(ii) About how long did it take Ron to do his set of 10 problems?

(i) T1 (unit factor 9) = T9. Hence unit factor 9 = T9/T1 = 24 min/60 min. = .4. This corresponds to approximately the .402 in Table 7S-1 for 75%.
(ii) The total time for 10, using 75 percent is 60(5.589) = 335.34 minutes, or 5.589 hours, or 5 hours and 35.34 minutes.

Short Answer *TB 07S-66 Ron has noted that the first accounting problem he...*

1030. award: 3.25 points

TB 07S-67 It takes a worker with a 90 percent learning curve...
It takes a worker with a 90 percent learning curve 72.9 minutes to complete the fourth unit of a seven-unit job. Estimate the amount of time the worker spent on the first two units.

Time for the fourth unit is 81 percent of the first. Hence, time for the first is 90 minutes, and time for the second is 81 minutes. The total time for the first two units would thus be 171 minutes.

Short Answer	*TB 07S-67 It takes a worker with a 90 percent learning curve...*

1031. award: 3.25 points

TB 07S-68 The 3rd unit of a ten-unit job required 7.3 hours ...
The 3rd unit of a ten-unit job required 7.3 hours to complete. The 4th unit has been worked on for two hours, but it is not yet finished. Estimate the remaining amount of time that will be needed to finish this ten-unit job if the work has a 80% learning curve.

1. Determine time for first unit:

T3 = unit table factor x T1
7.3 = T1 x .702
Solving, T1 = 10.40

2. Determine total time for all ten units:

Total time for 10 units	10.40 x 6.315 = 65.676
Total time for first 3 units	10.40 x 2.502 = 26.021
Time for #4-#10	39.655
less part of #4	–2.000
Remaining time	37.655 hours

Short Answer	*TB 07S-68 The 3rd unit of a ten-unit job required 7.3 hours ...*

1032. award: 3.25 points

TB 08-01 Location decisions are basically one-time decision...
Location decisions are basically one-time decisions pertaining to a new organization.

- ○ True
- → ○ False

True / False	*TB 08-01 Location decisions are basically one-time decision...*

1033. award: 3.25 points

TB 08-02 The fact that most types of firms are located in e...
The fact that most types of firms are located in every section of the country suggests that in many cases, location decisions are not overly important.

- ○ True
- → ○ False

True / False	*TB 08-02 The fact that most types of firms are located in e...*

1034. award: 4.25 points

TB 08-03 The procedure for location decisions depends on th...
The procedure for location decisions depends on the size of the organization.

→ True
False

True / False	*TB 08-03 The procedure for location decisions depends on th...*

1035. award: 4.25 points

TB 08-04 One of the factors affecting location decisions is...
One of the factors affecting location decisions is the company's position in the supply chain.

→ True
False

True / False	*TB 08-04 One of the factors affecting location decisions is...*

1036. award: 4.25 points

TB 08-05 Location planners first consider regional factors,...
Location planners first consider regional factors, then community site factors, in developing location alternatives.

→ True
False

True / False	*TB 08-05 Location planners first consider regional factors,...*

1037. award: 4.25 points

TB 08-06 For manufacturing firms, two dominating factors in...
For manufacturing firms, two dominating factors in location analysis are abundant and proximity to raw materials.

→ True
False

True / False	*TB 08-06 For manufacturing firms, two dominating factors in...*

1038. award: 4.25 points

TB 08-07 For service organizations, the dominant factors in...
For service organizations, the dominant factors in location analysis are usually market-related.

→ True
False

True / False	*TB 08-07 For service organizations, the dominant factors in...*

award:
1039. **1.25 points**

TB 08-08 An example of a regional factor in location planni...
An example of a regional factor in location planning is location of markets.

→ True
False

True / False	*TB 08-08 An example of a regional factor in location planni...*

award:
1040. **1.25 points**

TB 08-09 For agricultural and resource companies, locating ...
For agricultural and resource companies, locating close to raw materials is a necessity.

→ True
False

True / False	*TB 08-09 For agricultural and resource companies, locating ...*

award:
1041. **1.25 points**

TB 08-10 One reason firms locate in foreign countries is to...
One reason firms locate in foreign countries is to tap new markets.

→ True
False

True / False	*TB 08-10 One reason firms locate in foreign countries is to...*

award:
1042. **1.25 points**

TB 08-11 Corrupt governments can generally be viewed as adv...
Corrupt governments can generally be viewed as advantage that attracts Canadian companies to foreign locations.

True
→ False

True / False	*TB 08-11 Corrupt governments can generally be viewed as adv...*

award:
1043. **1.25 points**

TB 08-12 In site selection, land costs may be secondary to ...
In site selection, land costs may be secondary to other factors.

→ True
False

True / False	*TB 08-12 In site selection, land costs may be secondary to ...*

award:
1044. **4.25 points**

TB 08-13 Locating near customers is a primary factor for we...
Locating near customers is a primary factor for web-based businesses.

- True
- → False

True / False	*TB 08-13 Locating near customers is a primary factor for we...*

award:
1045. **4.25 points**

TB 08-14 Taxes are an example of a community-related factor...
Taxes are an example of a community-related factor in location decisions.

- → True
- False

True / False	*TB 08-14 Taxes are an example of a community-related factor...*

award:
1046. **4.25 points**

TB 08-15 For service and retail stores, a prime factor in l...
For service and retail stores, a prime factor in location analysis is customer access.

- → True
- False

True / False	*TB 08-15 For service and retail stores, a prime factor in l...*

award:
1047. **4.25 points**

TB 08-16 Within a particular city, retailers typically loca...
Within a particular city, retailers typically locate far from the location of their direct competitors.

- True
- → False

True / False	*TB 08-16 Within a particular city, retailers typically loca...*

award:
1048. **4.25 points**

TB 08-17 Factor rating is limited to quantitative informati...
Factor rating is limited to quantitative information concerning location decisions.

- True
- → False

True / False	*TB 08-17 Factor rating is limited to quantitative informati...*

award:
1049. **0.25 points**

TB 08-18 As a result of the factor rating analysis, a manag...
As a result of the factor rating analysis, a manager may sometimes reject all of the alternatives under consideration when the composite scores are below the minimum threshold value.

→ ○ True
○ False

True / False	*TB 08-18 As a result of the factor rating analysis, a manag...*

award:
1050. **0.25 points**

TB 08-19 The centre of gravity method is a location plannin...
The centre of gravity method is a location planning technique that determines a composite score from factor evaluation.

○ True
→ ○ False

True / False	*TB 08-19 The centre of gravity method is a location plannin...*

award:
1051. **0.25 points**

TB 08-20 The factor rating method of location planning uses...
The factor rating method of location planning uses a coordinate overlay to determine relative locations.

○ True
→ ○ False

True / False	*TB 08-20 The factor rating method of location planning uses...*

award:
1052. **0.25 points**

TB 08-21 The centre of gravity method is useful in location...
The centre of gravity method is useful in location planning for the location of a distribution centre.

→ ○ True
○ False

True / False	*TB 08-21 The centre of gravity method is useful in location...*

award:
1053. **0.25 points**

TB 08-22 The centre of gravity method of location planning ...
The centre of gravity method of location planning can be used only when the quantities to be shipped to each location are equal.

○ True
→ ○ False

True / False	*TB 08-22 The centre of gravity method of location planning ...*

1054. award: 4.25 points

TB 08-23 Location decisions are a highly important part of ...
Location decisions are a highly important part of production system design because:

I. typically they are made rather frequently
II. often they impact operating costs
III. they entail a high-cost, short-term commitment

- I
- → II
- III
- II and III
- I, II and III

Multiple Choice *TB 08-23 Location decisions are a highly important part of ...*

1055. award: 4.25 points

TB 08-24 Which of the following are basic steps in the loca...
Which of the following are basic steps in the location decision process?

I. identify important search parameters and factors
II. gather information on appropriate sites
III. visit short-listed sites
IV. evaluate the alternatives and make a selection

- II and III only
- I, II and III only
- II, III and IV only
- I, II only
- → I, II, III and IV

Multiple Choice *TB 08-24 Which of the following are basic steps in the loca...*

1056. award: 4.25 points

TB 08-25 Which statement is not associated with the basic s...
Which statement is not associated with the basic steps in the location decision process?

- eliminate some sites to develop a short list
- identify important search parameters
- → maximize the number of sites considered
- visit short-listed sites
- gather information

Multiple Choice *TB 08-25 Which statement is not associated with the basic s...*

1057. award: 4.25 points

TB 08-26 Which of the following is not an accurate statemen...
Which of the following is not an accurate statement concerning location decisions?

- location decisions are influenced by the availability of labour
- → the location decision process starts with developing a list of potential locations
- location decisions generally involve long-term commitments
- visiting a number of potential sites is typically part of the location decision process
- an organization's position in the supply chain influences location decisions

Multiple Choice *TB 08-26 Which of the following is not an accurate statemen...*

1058. award: 1.25 points

TB 08-27 Which statement concerning location analysis best ...
Which statement concerning location analysis best typifies most situations?

- Regional factors are very important.
- Community factors are very important.
- Availability of raw materials must be considered.
- Labour cost is important.
- → In most location decisions, one or two factors dominate the decision.

Multiple Choice	*TB 08-27 Which statement concerning location analysis best ...*

1059. award: 1.25 points

TB 08-28 In location planning, the location of raw material...
In location planning, the location of raw materials, the location of markets and labour factors are considered:

- → regional factors
- community factors
- site-related factors
- national factors
- none of the choices are factors

Multiple Choice	*TB 08-28 In location planning, the location of raw material...*

1060. award: 1.25 points

TB 08-29 Which of the following is least likely to be a reg...
Which of the following is least likely to be a regional factor in location decisions?

- raw materials
- markets
- weather
- → zoning
- labour

Multiple Choice	*TB 08-29 Which of the following is least likely to be a reg...*

1061. award: 1.25 points

TB 08-30 A factor that has caused problems for Canadian com...
A factor that has caused problems for Canadian companies operating plants in foreign countries is:

- tax laws
- raw materials
- → corruption
- labour cost
- lack of markets

Multiple Choice	*TB 08-30 A factor that has caused problems for Canadian com...*

1062. award: 4.25 points

TB 08-31 In location planning, land prices, transportation ...
In location planning, land prices, transportation types, and taxes are:

- regional/country factors
- → community/site-related factors
- market factors
- irrelevant factors
- none of the above

Multiple Choice	*TB 08-31 In location planning, land prices, transportation ...*

1063. award: 4.25 points

TB 08-32 Which of the following is not categorized a commun...
Which of the following is not categorized a community consideration in location planning?

- → labour costs
- educational facilities
- community resistance
- facilities for transportation
- all of the choices are community considerations

Multiple Choice	*TB 08-32 Which of the following is not categorized a commun...*

1064. award: 4.25 points

TB 08-33 In location planning, land and building costs are ...
In location planning, land and building costs are considered:

- regional factors
- → community/site-related factors
- raw material considerations
- regional/country factors
- none of the above

Multiple Choice	*TB 08-33 In location planning, land and building costs are ...*

1065. award: 4.25 points

TB 08-34 Which are the following are community/site-related...
Which are the following are community/site-related considerations in location decisions?

I. raw materials
II. labour rates
III. land prices
IV. room for expansion

- I, II
- I, III
- → III, IV
- I, III, IV
- I, II, III, IV

Multiple Choice	*TB 08-34 Which are the following are community/site-related...*

1066. award: 0.25 points

TB 08-35 Which of the following is not a reason for foreign...

Which of the following is not a reason for foreign firms to locate in Canada?

- decrease delivery time to Canadian customers
- access to Canadian natural resources
- Canadian workers are well educated
- energy costs are low
- → lack of government involvement in location decisions

Multiple Choice	*TB 08-35 Which of the following is not a reason for foreign...*

1067. award: 0.25 points

TB 08-36 The method for evaluating location alternatives wh...

The method for evaluating location alternatives which minimizes shipping costs between multiple sending and receiving locations is:

- break-even analysis
- → transportation method
- factor rating analysis
- linear regression
- Voronoi polygons

Multiple Choice	*TB 08-36 The method for evaluating location alternatives wh...*

1068. award: 0.25 points

TB 08-37 The method for evaluating location alternatives ba...

The method for evaluating location alternatives based on comparing composite (weighted-average) scores of both quantitative and qualitative criteria is:

- break-even analysis
- transportation method
- → factor rating analysis
- linear regression
- Voronoi polygons

Multiple Choice	*TB 08-37 The method for evaluating location alternatives ba...*

1069. award: 0.25 points

TB 08-38 An approach to locational analysis that includes b...

An approach to locational analysis that includes both qualitative and quantitative considerations is:

- break-even analysis
- → factor rating
- transportation method
- expected value
- Voronoi polygons

Multiple Choice	*TB 08-38 An approach to locational analysis that includes b...*

1070. award: 0.25 points

TB 08-39 A location analysis has been narrowed down to two ...

A location analysis has been narrowed down to two locations, A and B. The main factors in the decision will be supply of raw materials, which has a weight of .50, transportation cost, which has a weight of .40, and labour cost, which has a weight of .10. The ratings for raw materials, transportation, and labour are for A-60, 80, and 70, respectively; for B-70, 50, and 90, respectively. Given this information and a minimum acceptable composite score of 75, we can say that the manager should:

- be indifferent between these locations
- choose location A
- choose location B
- → reject both locations
- none of the above

Multiple Choice	*TB 08-39 A location analysis has been narrowed down to two ...*

1071. award: 0.25 points

TB 08-40 The method for determining location alternatives w...

The method for determining location alternatives which minimizes distribution costs is:

- break-even analysis
- transportation method
- factor rating analysis
- linear regression
- → centre of gravity method

Multiple Choice	*TB 08-40 The method for determining location alternatives w...*

Phi Upsilon Nu, a student social organization, has...

Phi Upsilon Nu, a student social organization, has two different locations under consideration for constructing a new chapter house. PhUN's president, a POM student, estimates that due to differing land costs, utility rates, etc., both fixed and variable costs would be different for each of the proposed sites, as follows:

	ANNUAL OPERATING COSTS	
LOCATION	FIXED	VARIABLE
Alpha Ave.	$5,000	$200 per person
Beta Blvd.	$8,000	$150 per person

Section Break	*Phi Upsilon Nu, a student social organization, has...*

1072. award: 0.25 points

TB 08-41 What would be total annual costs for the Alpha Ave...

What would be total annual costs for the Alpha Ave. location with twenty persons living there?

- $5,400
- $4,000
- $5,000
- $7,000
- → $9,000

Multiple Choice	*TB 08-41 What would be total annual costs for the Alpha Ave...*

1073. award: 4.25 points

TB 08-42 What would be total annual costs for either locati...

What would be total annual costs for either location at the point of indifference?

- $13,000
- $13,350
- $9,000
- → $17,000
- $19,200

Multiple Choice	*TB 08-42 What would be total annual costs for either locati...*

1074. award: 4.25 points

TB 08-43 If it is estimated that thirty persons will be liv...

If it is estimated that thirty persons will be living in this new chapter house, which location should PhUN select?

- → Alpha Ave.
- Beta Blvd.
- either Alpha Ave. or Beta Blvd.
- neither Alpha Ave. nor Beta Blvd.

Multiple Choice	*TB 08-43 If it is estimated that thirty persons will be liv...*

1075. award: 4.25 points

TB 08-44 If it is estimated that thirty persons will be liv...

If it is estimated that thirty persons will be living in this new chapter house, what would be PhUN's annual cost savings by selecting the less costly location, rather than the more costly?

- $0
- → $1,500
- $200
- $150
- $350

Multiple Choice	*TB 08-44 If it is estimated that thirty persons will be liv...*

A manufacturing firm is considering two locations ...

A manufacturing firm is considering two locations for a plant to produce a new product. The two locations have fixed and variable costs as follows:

Location	Fixed Costs	Variable Costs
Atlanta	$80,000/yr	$20/unit
Phoenix	$140,000/yr	$16/unit

Section Break	*A manufacturing firm is considering two locations ...*

award:
1076. **6.25 points**

TB 08-45 At what annual output would the company be indiffe...
At what annual output would the company be indifferent between the two locations?

- 60,000 units
- → 15,000 units
- 10,000 units
- 20,000 units
- 4,000 units

Multiple Choice	*TB 08-45 At what annual output would the company be indiffe...*

award:
1077. **6.25 points**

TB 08-46 What would the total annual costs be for the Phoen...
What would the total annual costs be for the Phoenix location with an annual output of 10,000 units?

- $280,000
- $140,000
- $220,000
- → $300,000
- $156,000

Multiple Choice	*TB 08-46 What would the total annual costs be for the Phoen...*

award:
1078. **6.25 points**

TB 08-47 What would be the total annual costs at the point ...
What would be the total annual costs at the point of indifference?

- $300,000
- $240,000
- → $380,000
- $220,000
- $760,000

Multiple Choice	*TB 08-47 What would be the total annual costs at the point ...*

award:
1079. **6.25 points**

TB 08-48 If annual demand is estimated to be 20,000 units, ...
If annual demand is estimated to be 20,000 units, which location should the company select?

- Atlanta
- → Phoenix
- either Atlanta or Phoenix
- neither Atlanta nor Phoenix

Multiple Choice	*TB 08-48 If annual demand is estimated to be 20,000 units, ...*

award:
1080. **1.25 points**

TB 08-49 If the annual demand is 20,000 units, what would b...
If the annual demand is 20,000 units, what would be the cost advantage of the better location?

→ ○ $20,000
○ $460,000
○ $480,000
○ $80,000
○ $60,000

Multiple Choice	*TB 08-49 If the annual demand is 20,000 units, what would b...*

A location analysis has been narrowed down to thre...
A location analysis has been narrowed down to three locations. The critical factors, their weights, and the ratings for each location are shown below:

Factor	Wt.	Location A	B	C
Labour Cost	.4	70	80	90
Transp. Cost	.2	80	80	60
Market Access	.2	90	70	60
Raw Mat'l. Access	.1	50	70	90
Utility Cost	.1	80	90	70

Section Break	*A location analysis has been narrowed down to thre...*

award:
1081. **1.25 points**

TB 08-50 What is the composite score for location A?
What is the composite score for location A?

○ 76
→ ○ 75
○ 78
○ 74
○ 76.33

Multiple Choice	*TB 08-50 What is the composite score for location A?*

award:
1082. **1.25 points**

TB 08-51 What is the composite score for location B?
What is the composite score for location B?

○ 76
○ 75
→ ○ 78
○ 74
○ 76.33

Multiple Choice	*TB 08-51 What is the composite score for location B?*

1083. award: 3.25 points

TB 08-52 What is the composite score for location C?
What is the composite score for location C?

→ ○ 76
○ 75
○ 78
○ 74
○ 76.33

Multiple Choice	*TB 08-52 What is the composite score for location C?*

1084. award: 3.25 points

TB 08-53 If the selection criterion is greatest composite s...
If the selection criterion is greatest composite score, management should:

○ choose location A
→ ○ choose location B
○ choose location C
○ be indifferent between B and C
○ reject all locations

Multiple Choice	*TB 08-53 If the selection criterion is greatest composite s...*

1085. award: 3.25 points

TB 08-54 If the selection criterion is greatest composite s...
If the selection criterion is greatest composite score exceeding 80, management should:

○ choose location A
○ choose location B
○ choose location C
○ be indifferent between B and C
→ ○ reject all locations

Multiple Choice	*TB 08-54 If the selection criterion is greatest composite s...*

A clothing manufacturer produces clothing in five ...
A clothing manufacturer produces clothing in five locations in the U.S. In a move to vertical integration, the company is planning a new fabric production plant which will supply fabric to all five clothing plants. The clothing plants have been located on a coordinate system as follows:

Location	(X,Y)
A	7,2
B	4,7
C	5,5
D	6,2
E	8,4

Section Break	*A clothing manufacturer produces clothing in five ...*

1086. award: 6.25 points

TB 08-55 If the shipments of fabric to each plant are equal...
If the shipments of fabric to each plant are equal, what is the optimal location for the fabric plant?

- 5,5
- → 6,4
- 4,6
- 6,2
- 5,4

Multiple Choice	*TB 08-55 If the shipments of fabric to each plant are equal...*

1087. award: 6.25 points

TB 08-56 Shipments of fabric to each plant vary per week as...
Shipments of fabric to each plant vary per week as follows: plant A, 200 units; plant B, 400 units; plant C, 300 units; plant D, 300 units; and plant E, 200 units. What is the optimal location for the fabric plant?

- 6.2, 3.0
- 6.0, 4.0
- 6.5, 5.3
- → 5.6, 4.4
- 5.0, 3.0

Multiple Choice	*TB 08-56 Shipments of fabric to each plant vary per week as...*

A hardware distributor has regional warehouses at ...
A hardware distributor has regional warehouses at the locations shown below. The company wants to locate a new central distribution centre to serve this warehouse network.

Location	(X,Y)
1	2,3
2	3,7
3	5,5
4	7,3
5	8,7

Section Break	*A hardware distributor has regional warehouses at ...*

1088. award: 6.25 points

TB 08-57 If weekly shipments to each warehouse will be appr...
If weekly shipments to each warehouse will be approximately equal, what is the optimal location for the distribution centre?

- → 5,5
- 5,4
- 4,5
- 5,6
- 6,5

Multiple Choice	*TB 08-57 If weekly shipments to each warehouse will be appr...*

1089. award: 0.25 points

TB 08-58 Weekly shipments to each warehouse will be: WH1, 1...

Weekly shipments to each warehouse will be: WH1, 100; WH2, 150; WH3, 120; WH4, 150; and WH5, 120. What is the optimal location of the distribution centre?

- 5.1, 4.2
- 5.2, 4.0
- → 5.1, 5.1
- 4.2, 5.1
- 4.9, 5.2

Multiple Choice	*TB 08-58 Weekly shipments to each warehouse will be: WH1, 1...*

1090. award: 0.25 points

TB 08-59 Which of the following is not an accurate statemen...

Which of the following is not an accurate statement concerning the Voronoi polygon approach to location analysis for companies with multiple facilities?

- each polygon contains one facility
- any point within a polygon is closer to the centre of its polygon than any other polygon
- Lawson's algorithm is a technique for determining Volonoi polygons
- → a city or town being analyzed is broken up into multiple overlapping polygons
- analysis is based on the Euclidian distance between two points

Multiple Choice	*TB 08-59 Which of the following is not an accurate statemen...*

1091. award: 0.25 points

TB 08-60 Determine the centre of gravity location for the d...

Determine the centre of gravity location for the destinations and shipping quantities shown below:

Destination	(x,y)	Quantity
D1	3,5	600
D2	5,1	400
D3	6,7	300
D4	8,4	500

$$\bar{x} = \frac{3(600) + 5(400) + 6(300) + 8(500)}{600 + 400 + 300 + 500} = \frac{9{,}600}{1{,}800} = 5.33$$

$$y = \frac{5(600) + 1(400) + 6(300) + 8(500)}{1{,}800} = \frac{7{,}500}{1{,}800} = 4.17$$

The centre of gravity is at 5.33, 4.17.

Short Answer	*TB 08-60 Determine the centre of gravity location for the d...*

1092. award: 3.25 points

TB 08-61 Determine the optimum location for a distribution ...

Determine the optimum location for a distribution centre to serve the following locations. Shipments to each location will be approximately equal.

Location	(x,y)
A	2,2
B	5,6
C	6,3
D	7,5

$$\bar{x} = \frac{2+5+6+7}{4} = \frac{20}{4} = 5 \qquad y = \frac{2+6+3+5}{4} = \frac{16}{4} = 4$$

Short Answer	*TB 08-61 Determine the optimum location for a distribution ...*

1093. award: 3.25 points

TB 08-62 A manager must decide between two location alterna...

A manager must decide between two location alternatives, Boston and Chicago. Boston would have annual fixed costs of $70,000, transportation costs of $60 per unit, and labour and material costs of $200 per unit. Chicago would have annual fixed costs of $90,000, transportation costs of $40 per unit, and labour and material costs of $170 per unit. Revenue will be $300 per unit.

(i) Which alternative would yield the higher profit for an annual demand of 3,000 units?
(ii) Would the two locations yield the same profit at a certain volume? If so, at what volume would that be?

	FC	vC/unit	Rev/unit
Boston	$70,000	$60 + $200 = $260	$300
Chicago	90,000	40 + 170 = 210	300

(i) Boston profit @ 3,000: 3,000($300 - $260) - $70,000 = $ 50,000
Chicago profit @ 3,000: 3,000($300 - $210) - $90,000 = 180,000
Therefore, Chicago would have the higher profit.
(ii) At 400 units, both would produce a loss of $54,000.
At no point would their profits be equal.

Short Answer	*TB 08-62 A manager must decide between two location alterna...*

1094. award: 4.25 points

TB 08-63 A firm is trying to decide between two location al...

A firm is trying to decide between two location alternatives, A and B. A would result in annual fixed costs of $60,000, labour costs of $7 per unit, material costs of $10 per unit, transportation costs of $15 per unit, and revenue per unit of $50. Location B would have annual fixed costs of $80,000, labour costs of $6 per unit, material costs of $9 per unit, transportation costs of $14 per unit, and revenue per unit of $48.

(i) At an annual volume of 9,000, which would yield the higher profit?
(ii) At what annual volume would management be indifferent between the two alternatives in terms of annual profits?

	FC	vC/unit	Rev/unit
A	$60,000	$7 + $10 + $15 = $32	$50
B	80,000	6 + 9 + 14 = 29	48

(i) Profits @ 9,000 units a year: A = $102,000; B = $91,000
(ii) $18Q - $60,000 = $19Q - $80,000. Solving, Q = 20,000 units.

Short Answer *TB 08-63 A firm is trying to decide between two location al...*

Reference

SITE	FIXED COST	VARIABLE COST
A	$100,000 per year	$ 10 per unit
B	120,000 per year	8 per unit
C	150,000 per year	7 per unit

Section Break *Reference*

1095. award: 4.25 points

TB 08-64 What are total costs for site A for a quantity of ...

What are total costs for site A for a quantity of 5,000 units per year?

$150,000

Short Answer *TB 08-64 What are total costs for site A for a quantity of ...*

1096. award: 4.25 points

TB 08-65 What are total costs for site B for a quantity of ...

What are total costs for site B for a quantity of 5,000 units per year?

$160,000

Short Answer *TB 08-65 What are total costs for site B for a quantity of ...*

1097. award: 0.25 points

TB 08-66 What are total costs for site C for a quantity of ...
What are total costs for site C for a quantity of 5,000 units per year?

$185,000

Short Answer	*TB 08-66 What are total costs for site C for a quantity of ...*

1098. award: 0.25 points

TB 08-67 For what quantity would you be indifferent between...
For what quantity would you be indifferent between selecting site A or site B?

10,000 units per year

Short Answer	*TB 08-67 For what quantity would you be indifferent between...*

1099. award: 0.25 points

TB 08-68 For what quantity would you be indifferent between...
For what quantity would you be indifferent between selecting site B or site C?

30,000 units per year

Short Answer	*TB 08-68 For what quantity would you be indifferent between...*

1100. award: 0.25 points

TB 08-69 For what range of output would you prefer site A?
For what range of output would you prefer site A?

1-9,999

Short Answer	*TB 08-69 For what range of output would you prefer site A?*

1101. award: 0.25 points

TB 08-70 For what range of output would you prefer site B?
For what range of output would you prefer site B?

10,001 - 29,999

Short Answer	*TB 08-70 For what range of output would you prefer site B?*

1102. award: 0.25 points

TB 08-71 For what range of output would you prefer site C?
For what range of output would you prefer site C?

30,001 and above

Short Answer	*TB 08-71 For what range of output would you prefer site C?*

1103. award: 0.25 points

TB 08-72 Which site would you prefer for a quantity of 20,0...
Which site would you prefer for a quantity of 20,000 units per year?

B

Short Answer	*TB 08-72 Which site would you prefer for a quantity of 20,0...*

1104. award: 0.25 points

TB 08-73 For the preferred site for 20,000 units per year, ...
For the preferred site for 20,000 units per year, what would be your total costs?

$280,000

Short Answer	*TB 08-73 For the preferred site for 20,000 units per year, ...*

1105. award: 0.25 points

TB 08-74 For the preferred site for 20,000 units per year, ...
For the preferred site for 20,000 units per year, what would be your cost savings compared to each of the other two sites?

$20,000 vs. A; $10,000 vs. C

Short Answer	*TB 08-74 For the preferred site for 20,000 units per year, ...*

1106. award: 0.25 points

TB 08-75 Given the information below on scores of three loc...

Given the information below on scores of three location alternatives, which alternative would you recommend? Why?

		Location		
Factor	Wt.	A	B	C
Raw materials	.4	80	70	80
Market	.2	40	60	80
Transportation cost	.1	90	70	50
Labour cost	.2	70	70	50
Construction cost	.1	90	80	60

Composite scores are: A = 72, B = 69, and C = 67.
If the criterion is highest composite, choose A.

Short Answer	*TB 08-75 Given the information below on scores of three loc...*

1107. award: 0.25 points

TB 08S-01 The transportation model assumes homogeneous goods...

The transportation model assumes homogeneous goods.

→ ○ True
○ False

True / False	*TB 08S-01 The transportation model assumes homogeneous goods...*

1108. award: 0.25 points

TB 08S-02 The transportation model assumes transportation co...

The transportation model assumes transportation cost per unit is the same regardless of the number of units shipped.

→ ○ True
○ False

True / False	*TB 08S-02 The transportation model assumes transportation co...*

1109. award: 0.25 points

TB 08S-03 The transportation model can be used for capacity ...

The transportation model can be used for capacity planning.

→ ○ True
○ False

True / False	*TB 08S-03 The transportation model can be used for capacity ...*

1110. award: 0.25 points

TB 08S-04 The transportation model assumes one mode of trans...
The transportation model assumes one mode of transport between each origin and destination.

→ True
False

True / False	*TB 08S-04 The transportation model assumes one mode of trans...*

1111. award: 0.25 points

TB 08S-05 The transportation model is a special type of line...
The transportation model is a special type of linear programming model.

→ True
False

True / False	*TB 08S-05 The transportation model is a special type of line...*

1112. award: 0.25 points

TB 08S-06 The decision variables for a transportation model ...
The decision variables for a transportation model are the quantities to be shipped.

→ True
False

True / False	*TB 08S-06 The decision variables for a transportation model ...*

1113. award: 0.25 points

TB 08S-07 Which of the following is not information needed t...
Which of the following is not information needed to use the transportation model?

capacity of the sources
demand of the destinations
unit shipping costs
→ unit shipping distances
all of the choices

Multiple Choice	*TB 08S-07 Which of the following is not information needed t...*

1114. award: 0.25 points

TB 08S-08 Which of the following is the information needed t...
Which of the following is the information needed to use the transportation model?

I) A list of the origins and each one's capacity per period
II) A list of the destinations and each one's demand per period
III) The unit cost of shipping items from each origin to each destination

I only
II only
III only
II and III only
→ I, II, and III

Multiple Choice	*TB 08S-08 Which of the following is the information needed t...*

1115. award: 0.25 points

TB 08S-09 The transportation model method for evaluating loc...
The transportation model method for evaluating location alternatives minimizes:

- the number of sources
- the number of destinations
- the number of alternatives
- total demand
- → total shipping cost

Multiple Choice	*TB 08S-09 The transportation model method for evaluating loc...*

1116. award: 0.25 points

TB 08S-10 Which of the following are assumptions or requirem...
Which of the following are assumptions or requirements of the transportation method?

I. Goods are the same, regardless of source.
II. There must be multiple sources.
III. Minimum quantities must be shipped.
IV. Shipping costs per unit do not vary with the quantity shipped.

- I and IV only
- II and III only
- → I, II, and IV only
- I and III only
- I, II, III, and IV

Multiple Choice	*TB 08S-10 Which of the following are assumptions or requirem...*

1117. award: 0.25 points

TB 08S-11 Which of the following is not an assumption of the...
Which of the following is not an assumption of the transportation model?

- → Actual supply and demand must be equal.
- Shipping costs per unit are constant.
- Items to be shipped are homogeneous.
- one transportation route between each source and destination
- one transportation mode between each source and destination

Multiple Choice	*TB 08S-11 Which of the following is not an assumption of the...*

1118. award: 0.25 points

TB 08S-12 An automobile manufacturer who has eight assembly ...
An automobile manufacturer who has eight assembly plants and thousands of dealers throughout Canada can find the optimal distribution plan by using:

- linear programming model
- transportation model
- location model
- → only A or B
- all of the choices (A, B, and C)

Multiple Choice	*TB 08S-12 An automobile manufacturer who has eight assembly ...*

1119. award: 0.25 points

TB 08S-13 The transportation method is a linear programming ...

The transportation method is a linear programming technique. Linearity is present in the following way:

→ ○ The cost of goods shipped from any source to any destination is a linear function of quantity shipped.
○ The cost of goods shipped from any source to any destination is a linear function of the cost per unit.
○ The total cost associated with a given plan is a linear function of shipping costs.
○ Cell evaluations require linear movements through the matrix.
○ Cell evaluations are linear.

Multiple Choice	*TB 08S-13 The transportation method is a linear programming ...*

A campaign manager for a political candidate must ...

A campaign manager for a political candidate must arrange the shipment of 150 cartons of campaign buttons from three button producers to three campaign headquarters. The supplies and demands, and the per-carton transportation costs, are shown below:

		DESTINATION CAMPAIGN HEADQUARTERS			
		1	2	3	Supply
SOURCE:	1	$2	5	6	50
BUTTON	2	9	3	7	50
PRODUCERS	3	1	8	4	50
Demand:		20	70	60	

Section Break	*A campaign manager for a political candidate must ...*

1120. award: 0.25 points

TB 08S-14 Which of the following is an objective function fo...

Which of the following is an objective function for the problem?

○ Min 50X11+ 50X12+ 50X13+ 20X31+ 70X32+ 60X33
→ ○ Min 2X11+ 5X12+ 6X13+ 9X21+ 3X22+ 7X23+ X31+ 8X32+ 4X33
○ Max 2X11+ 5X12+ 6X13+ 9X21+ 3X22+ 7X23+ X31+ 8X32+ 4X33
○ Max 20X11+ 70X12+ 60X13+ 50X31+ 50X32+ 50X33
○ None of the choices.

Multiple Choice	*TB 08S-14 Which of the following is an objective function fo...*

1121. award: 0.25 points

TB 08S-15 Which of the following is a constraint for the sup...

Which of the following is a constraint for the suppliers (button producers)?

○ 2X11+ 5X12+ 6X13≤ 50
○ 9X11+ 3X12+ 7X13= 50
→ ○ X11+ X12+ X13≤ 50
○ X11+ X21+ X31= 20
○ all of the choices

Multiple Choice	*TB 08S-15 Which of the following is a constraint for the sup...*

award:
1122. **3.25 points**

TB 08S-16 Which of the following is a constraint for the cus...
Which of the following is a constraint for the customer (campaign headquarters)?

- 2X11+ 9X21+ X31= 20
- 5X12+ 3X22+ 8X32= 70
- X11+ X12+ X13= 50
- → X12+ X22+ X32= 70
- all of the choices

Multiple Choice	*TB 08S-16 Which of the following is a constraint for the cus...*

award:
1123. **3.25 points**

TB 09-01 IBroadly defined, quality refers to the ability of ...
Broadly defined, quality refers to the ability of a product or service to consistently meet or exceed customer expectations.

- → True
- False

True / False	*TB 09-01 IBroadly defined, quality refers to the ability of ...*

award:
1124. **3.25 points**

TB 09-02 Broadly defined, quality refers to the ability of ...
Broadly defined, quality refers to the ability of a product or service to consistently meet or exceed design specifications.

- True
- → False

True / False	*TB 09-02 Broadly defined, quality refers to the ability of ...*

award:
1125. **3.25 points**

TB 09-03 Performance and special features are both consider...
Performance and special features are both considered to be dimensions of product quality.

- → True
- False

True / False	*TB 09-03 Performance and special features are both consider...*

award:
1126. **3.25 points**

TB 09-04 Reliability and durability are both considered to ...
Reliability and durability are both considered to be dimensions of product quality.

- → True
- False

True / False	*TB 09-04 Reliability and durability are both considered to ...*

1127. award: 0.25 points

TB 09-05 Various dimensions of quality are required to refl...
Various dimensions of quality are required to reflect various connotations of quality that customers value in products and services.

→ True
False

True / False	*TB 09-05 Various dimensions of quality are required to refl...*

1128. award: 0.25 points

TB 09-06 The dimensions of product quality don't adequately...
The dimensions of product quality don't adequately describe service quality.

→ True
False

True / False	*TB 09-06 The dimensions of product quality don't adequately...*

1129. award: 0.25 points

TB 09-07 Performance and price are both considered to be di...
Performance and price are both considered to be dimensions of product quality.

True
→ False

True / False	*TB 09-07 Performance and price are both considered to be di...*

1130. award: 0.25 points

TB 09-08 The term fitness for use is used as an alternate w...
The term *fitness for use* is used as an alternate way to describe the safety of a product.

True
→ False

True / False	*TB 09-08 The term fitness for use is used as an alternate w...*

1131. award: 0.25 points

TB 09-09 One of the primary determinants of product quality...
One of the primary determinants of product quality includes the translation of product characteristics into process design.

→ True
False

True / False	*TB 09-09 One of the primary determinants of product quality...*

1132. award: 0.25 points

TB 09-10 Responsiveness is a dimension of quality that only...
Responsiveness is a dimension of quality that only applies to products, not services.

- True
- → False

True / False	*TB 09-10 Responsiveness is a dimension of quality that only...*

1133. award: 0.25 points

TB 09-11 All of the dimensions of quality are equally impor...
All of the dimensions of quality are equally important to the customer.

- True
- → False

True / False	*TB 09-11 All of the dimensions of quality are equally impor...*

1134. award: 0.25 points

TB 09-12 Armand Feigenbaum was General Electric's top exper...
Armand Feigenbaum was General Electric's top expert on quality.

- → True
- False

True / False	*TB 09-12 Armand Feigenbaum was General Electric's top exper...*

1135. award: 0.25 points

TB 09-13 Quality is primarily determined by product design,...
Quality is primarily determined by product design, while process design and conformance to design specifications are secondary, less significant determinants of quality.

- True
- → False

True / False	*TB 09-13 Quality is primarily determined by product design,...*

1136. award: 0.25 points

TB 09-14 As a dimension of service quality, assurance refer...
As a dimension of service quality, assurance refers to the knowledge exhibited by personnel working in service organizations and their ability to convey trust and confidence.

- → True
- False

True / False	*TB 09-14 As a dimension of service quality, assurance refer...*

1137. award: 0.25 points

TB 09-15 Latent quality refers to consistent performance of...
Latent quality refers to consistent performance of a product over time, as in not breaking down for long periods of time.

- True
- → False

True / False	*TB 09-15 Latent quality refers to consistent performance of...*

1138. award: 0.25 points

TB 09-16 The degree to which a product or service satisfies...
The degree to which a product or service satisfies its *fitness for use* is determined by service after sale, durability, safety and cost.

- True
- → False

True / False	*TB 09-16 The degree to which a product or service satisfies...*

1139. award: 0.25 points

TB 09-17 As a dimension of service quality, tangibles refer...
As a dimension of service quality, tangibles refers to the availability and accessibility of the service.

- True
- → False

True / False	*TB 09-17 As a dimension of service quality, tangibles refer...*

1140. award: 0.25 points

TB 09-18 Quality function deployment is a technique used to...
Quality function deployment is a technique used to establish the dimensions of service quality customers expect to be bundled with product purchases.

- True
- → False

True / False	*TB 09-18 Quality function deployment is a technique used to...*

1141. award: 0.25 points

TB 09-19 The determination of quality stops once the produc...
The determination of quality stops once the product has been delivered to customers.

- True
- → False

True / False	*TB 09-19 The determination of quality stops once the produc...*

1142. award: 0.25 points

TB 09-20 Product safety is the primary dimension of fitness...
Product safety is the primary dimension of fitness for use.

- True
- → False

True / False	*TB 09-20 Product safety is the primary dimension of fitness...*

1143. award: 0.25 points

TB 09-21 The cost of quality includes production costs, fai...
The cost of quality includes production costs, failure costs, and replacement costs.

- True
- → False

True / False	*TB 09-21 The cost of quality includes production costs, fai...*

1144. award: 0.25 points

TB 09-22 The primary difference between internal failures a...
The primary difference between internal failures and external failures is time and place of discovery of the failure.

- → True
- False

True / False	*TB 09-22 The primary difference between internal failures a...*

1145. award: 0.25 points

TB 09-23 Cost of inspectors, testing, test equipment, and l...
Cost of inspectors, testing, test equipment, and labs are examples of prevention costs.

- True
- → False

True / False	*TB 09-23 Cost of inspectors, testing, test equipment, and l...*

1146. award: 0.25 points

TB 09-24 Cost of inspectors, testing, test equipment, and l...
Cost of inspectors, testing, test equipment, and labs are examples of appraisal costs.

- → True
- False

True / False	*TB 09-24 Cost of inspectors, testing, test equipment, and l...*

award:
1147. 0.25 points

TB 09-25 Deming stresses that workers are primarily respons...
Deming stresses that workers are primarily responsible for poor quality because they fail to follow instructions.

- True
- → False

True / False	*TB 09-25 Deming stresses that workers are primarily respons...*

award:
1148. 0.25 points

TB 09-26 According to Deming, it is management's system tha...
According to Deming, it is management's system that is primarily responsible for poor quality, not employees.

- → True
- False

True / False	*TB 09-26 According to Deming, it is management's system tha...*

award:
1149. 0.25 points

TB 09-27 Juran describes quality management as a trilogy th...
Juran describes quality management as a trilogy that consists of quality planning, quality control, and quality improvement.

- → True
- False

True / False	*TB 09-27 Juran describes quality management as a trilogy th...*

award:
1150. 0.25 points

TB 09-28 Juran describes quality management as a trilogy th...
Juran describes quality management as a trilogy that consists of quality planning, control of quality costs, and quality improvement.

- True
- → False

True / False	*TB 09-28 Juran describes quality management as a trilogy th...*

award:
1151. 0.25 points

TB 09-29 Juran, like Deming, believes that a large majority...
Juran, like Deming, believes that a large majority of quality defects are management's responsibility.

- → True
- False

True / False	*TB 09-29 Juran, like Deming, believes that a large majority...*

1152. award: 0.25 points

TB 09-30 Crosby advocates zero defects, which requires ma...
Crosby advocates "zero defects", which requires massive inspection efforts to ensure detection of defective products prior to delivery to a customer.

- True
- → False

True / False	*TB 09-30 Crosby advocates zero defects, which requires ma...*

1153. award: 0.25 points

TB 09-31 Crosby's concept of quality is free means that i...
Crosby's concept of "quality is free" means that it is less expensive to do it right initially than to do it over.

- → True
- False

True / False	*TB 09-31 Crosby's concept of quality is free means that i...*

1154. award: 0.25 points

TB 09-32 The ISO 9001 is a quality standard developed by th...
The ISO 9001 is a quality standard developed by the Standards Council of Canada specifically for Canadian companies.

- True
- → False

True / False	*TB 09-32 The ISO 9001 is a quality standard developed by th...*

1155. award: 0.25 points

TB 09-33 ISO 9001 certification requires an ongoing series ...
ISO 9001 certification requires an ongoing series of audits and the need to be re-registered every three years.

- → True
- False

True / False	*TB 09-33 ISO 9001 certification requires an ongoing series ...*

1156. award: 0.25 points

TB 09-34 The ISO 9001 certification refers to a process of ...
The ISO 9001 certification refers to a process of 100 percent inspection to catch all defective products before they leave the company.

- True
- → False

True / False	*TB 09-34 The ISO 9001 certification refers to a process of ...*

1157. award: **0.25 points**

TB 09-35 The Canada Awards for Excellence criteria apply on...
The Canada Awards for Excellence criteria apply only to profit oriented organizations.

- True
- → False

True / False	*TB 09-35 The Canada Awards for Excellence criteria apply on...*

1158. award: **0.25 points**

TB 09-36 ISO 9001 is the international standard for a quali...
ISO 9001 is the international standard for a quality management system.

- → True
- False

True / False	*TB 09-36 ISO 9001 is the international standard for a quali...*

1159. award: **0.25 points**

TB 09-37 HACCP is a quality control system for food service...
HACCP is a quality control system for food service providers.

- True
- → False

True / False	*TB 09-37 HACCP is a quality control system for food service...*

1160. award: **0.25 points**

TB 09-38 Three key philosophies in TQM are continuous impro...
Three key philosophies in TQM are continuous improvement, involvement of everyone in the organization, and customer satisfaction.

- → True
- False

True / False	*TB 09-38 Three key philosophies in TQM are continuous impro...*

1161. award: **0.25 points**

TB 09-39 TQM expands the traditional view of quality which ...
TQM expands the traditional view of quality which is looking only at the quality of the final product or service to looking at the quality of every aspect of the process.

- → True
- False

True / False	*TB 09-39 TQM expands the traditional view of quality which ...*

1162. award: 0.25 points

TB 09-40 Total quality management attempts to involve every...
Total quality management attempts to involve everyone in an organization in the effort to achieve quality.

→ ○ True
○ False

True / False	*TB 09-40 Total quality management attempts to involve every...*

1163. award: 0.25 points

TB 09-41 The overall mission of a company that commits to T...
The overall mission of a company that commits to TQM is to design highly efficient production processes.

○ True
→ ○ False

True / False	*TB 09-41 The overall mission of a company that commits to T...*

1164. award: 0.25 points

TB 09-42 While a traditional organization puts its focus on...
While a traditional organization puts its focus on process, a TQM organization focuses on product.

○ True
→ ○ False

True / False	*TB 09-42 While a traditional organization puts its focus on...*

1165. award: 0.25 points

TB 09-43 In Canada the Hazard Analysis Critical Control Poi...
In Canada the Hazard Analysis Critical Control Point (HACCP) certification system is administered by the Canadian Standards Association to limit the hazards in all industrial plants in the country.

○ True
→ ○ False

True / False	*TB 09-43 In Canada the Hazard Analysis Critical Control Poi...*

1166. award: 0.25 points

TB 09-44 The Hazard Analysis Critical Control Point (HACCP)...
The Hazard Analysis Critical Control Point (HACCP) system is a quality management system that deals with food safety.

→ ○ True
○ False

True / False	*TB 09-44 The Hazard Analysis Critical Control Point (HACCP)...*

1167. award: 0.25 points

TB 09-45 The benchmark organization must be chosen from the...
The benchmark organization must be chosen from the same industry in order for its methods to be applicable.

- True
- → False

True / False	*TB 09-45 The benchmark organization must be chosen from the...*

1168. award: 0.25 points

TB 09-46 With the HACCP quality management system, the poin...
With the HACCP quality management system, the point at which processed food is sealed in packaging is considered a critical control point.

- → True
- False

True / False	*TB 09-46 With the HACCP quality management system, the poin...*

1169. award: 0.25 points

TB 09-47 In total quality management, the role of the manag...
In total quality management, the role of the manager is to issue orders and ensure compliance.

- True
- → False

True / False	*TB 09-47 In total quality management, the role of the manag...*

1170. award: 0.25 points

TB 09-48 Suppliers are not included in quality assurance an...
Suppliers are not included in quality assurance and quality improvement efforts in TQM.

- True
- → False

True / False	*TB 09-48 Suppliers are not included in quality assurance an...*

1171. award: 0.25 points

TB 09-49 Total quality management explicitly recognizes tha...
Total quality management explicitly recognizes that management is primarily responsible for quality.

- True
- → False

True / False	*TB 09-49 Total quality management explicitly recognizes tha...*

1172. award: 0.25 points

TB 09-50 TQM is not just a collection of techniques. It is ...
TQM is not just a collection of techniques. It is rather a whole new attitude toward quality.

→ ○ True
○ False

True / False	*TB 09-50 TQM is not just a collection of techniques. It is ...*

1173. award: 0.25 points

TB 09-51 Total quality management is a collection of techni...
Total quality management is a collection of techniques, such as quality control charts, ISO 9001, and quality function deployment.

○ True
→ ○ False

True / False	*TB 09-51 Total quality management is a collection of techni...*

1174. award: 0.25 points

TB 09-52 Suppliers are partners in TQM and should be includ...
Suppliers are partners in TQM and should be included in quality improvement efforts.

→ ○ True
○ False

True / False	*TB 09-52 Suppliers are partners in TQM and should be includ...*

1175. award: 0.25 points

TB 09-53 When problems arise in a total quality managed org...
When problems arise in a total quality managed organization, the emphasis is to assign blame and punish the worker responsible.

○ True
→ ○ False

True / False	*TB 09-53 When problems arise in a total quality managed org...*

1176. award: 0.25 points

TB 09-54 Studying and documenting the current problem is an...
Studying and documenting the current problem is an important step in continuous improvement.

→ ○ True
○ False

True / False	*TB 09-54 Studying and documenting the current problem is an...*

1177. award: 0.25 points

TB 09-55 The plan element of the PDSA cycle includes data...
The "plan" element of the PDSA cycle includes data collection and analysis to develop an improvement plan.

→ ○ True
○ False

True / False	*TB 09-55 The plan element of the PDSA cycle includes data...*

1178. award: 0.25 points

TB 09-56 The PDSA cycle forms the conceptual basis for cont...
The PDSA cycle forms the conceptual basis for continuous improvement.

→ ○ True
○ False

True / False	*TB 09-56 The PDSA cycle forms the conceptual basis for cont...*

1179. award: 0.25 points

TB 09-57 Six sigma is a more advanced and effective version...
Six sigma is a more advanced and effective version of TQM.

→ ○ True
○ False

True / False	*TB 09-57 Six sigma is a more advanced and effective version...*

1180. award: 0.25 points

TB 09-58 The Six-sigma program refers to extremely high pro...
The Six-sigma program refers to extremely high process capability.

→ ○ True
○ False

True / False	*TB 09-58 The Six-sigma program refers to extremely high pro...*

1181. award: 0.25 points

TB 09-59 A control chart is a visual representation of the ...
A control chart is a visual representation of the key states in a process.

○ True
→ ○ False

True / False	*TB 09-59 A control chart is a visual representation of the ...*

1182. award: 0.25 points

TB 09-60 A major distinction between quality circles and co...
A major distinction between quality circles and continuous improvement teams is the amount of authority given to each group.

→ True
False

True / False	*TB 09-60 A major distinction between quality circles and co...*

1183. award: 0.25 points

TB 09-61 The purpose of benchmarking is to establish a stan...
The purpose of benchmarking is to establish a standard against which the organization's performance can be judged, and to identify a model for possible improvement.

→ True
False

True / False	*TB 09-61 The purpose of benchmarking is to establish a stan...*

1184. award: 0.25 points

TB 09-62 Which of the following are dimensions of product q...
Which of the following are dimensions of product quality?

I) aesthetics
II) safety
III) price
IV) special features

I, II only
I, II, III
II, III, IV
→ I, II, IV
I, III, IV

Multiple Choice	*TB 09-62 Which of the following are dimensions of product q...*

1185. award: 0.25 points

TB 09-63 Which of the following are dimensions of product q...
Which of the following are dimensions of product quality?

I) performance
II) price
III) perceived quality
IV) service after sale

I, II
I, II, III
II, III, IV
I, II, IV
→ I, III, IV

Multiple Choice	*TB 09-63 Which of the following are dimensions of product q...*

1186. award: 0.25 points

TB 09-64 Which of the following are dimensions of service q...

Which of the following are dimensions of service quality?

I) convenience
II) reliability
III) time
IV) insurance

- I, II only
- I, III only
- → I, II, III
- II, III, IV
- I, II, III, IV

Multiple Choice	*TB 09-64 Which of the following are dimensions of service q...*

1187. award: 0.25 points

TB 09-65 The three primary determinants of quality are:

The three primary determinants of quality are:

- product design, product performance, and service after sale
- product design, product reliability, and service after sale
- → product design, process design, and conformance to design during production
- product design, product performance, and conformance to design after sale
- product design, product reliability, and conformance to design during production

Multiple Choice	*TB 09-65 The three primary determinants of quality are:*

1188. award: 0.25 points

TB 09-66 Which of the following is not an example of an ext...

Which of the following is not an example of an external failure cost?

- warranty claims
- handling complaints
- loss of customer goodwill
- → scrap and rework
- price discounts to offset inferior quality

Multiple Choice	*TB 09-66 Which of the following is not an example of an ext...*

1189. award: 0.25 points

TB 09-67 Defective material from suppliers and lost product...

Defective material from suppliers and lost production time are examples of:

- → internal failure costs
- external failure costs
- appraisal costs
- prevention costs
- replacement costs

Multiple Choice	*TB 09-67 Defective material from suppliers and lost product...*

1190. award: 0.25 points

TB 09-68 Warranty service, processing of complaints, and co...
Warranty service, processing of complaints, and costs of litigation are examples of:

- internal failure costs
- → external failure costs
- appraisal costs
- prevention costs
- replacement costs

Multiple Choice	*TB 09-68 Warranty service, processing of complaints, and co...*

1191. award: 0.25 points

TB 09-69 Costs of inspectors, testing, test equipment, and ...
Costs of inspectors, testing, test equipment, and labs are examples of:

- internal failure costs
- external failure costs
- → appraisal costs
- prevention costs
- replacement costs

Multiple Choice	*TB 09-69 Costs of inspectors, testing, test equipment, and ...*

1192. award: 0.25 points

TB 09-70 Quality planning and administration, quality train...
Quality planning and administration, quality training, and quality control procedures are examples of:

- internal failure costs
- external failure costs
- appraisal costs
- → prevention costs
- replacement costs

Multiple Choice	*TB 09-70 Quality planning and administration, quality train...*

1193. award: 0.25 points

TB 09-71 Which of the following are key elements of Deming'...
Which of the following are key elements of Deming's beliefs?

I. Implementing mass inspection whereby all output is checked for quality problems.
II. The need to reduce variation in output.
III. Motivate workers using numerical quotas based on work standards

- → II only
- I and II
- II and III
- I, II, and III
- I only

Multiple Choice	*TB 09-71 Which of the following are key elements of Deming'...*

1194. award: 0.25 points

TB 09-72 Which of the following is not an accurate match of...
Which of the following is not an accurate match of quality gurus and their contribution?

- Deming - 14 points (special vs. common causes of variation)
- Crosby - zero effects
- → Feigenbaum - statistical process control (SPC)
- Juran - fitness-for-use and measuring the cost of quality
- All of the choices are correctly matched.

Multiple Choice	*TB 09-72 Which of the following is not an accurate match of...*

1195. award: 0.25 points

TB 09-73 Which of the following is not one of Deming's 14 p...
Which of the following is not one of Deming's 14 points of quality?

- create constancy of purpose toward improvement of product/service
- adopt the new philosophy
- cease dependence on mass inspection
- break down barriers between departments
- → institute work goals and standards

Multiple Choice	*TB 09-73 Which of the following is not one of Deming's 14 p...*

1196. award: 0.25 points

TB 09-74 Which of the following is not true about Juran's v...
Which of the following is not true about Juran's views of quality?

- Roughly 80% of quality defects are controllable by management.
- → The process of quality, not the cost of quality, must be measured.
- Management must be committed to continual improvement.
- Quality planning is a key part of quality management.
- All of the choices are true.

Multiple Choice	*TB 09-74 Which of the following is not true about Juran's v...*

1197. award: 0.25 points

TB 09-75 Which of the following does not match well between...
Which of the following does not match well between quality gurus and their contribution?

- Juran - quality is fitness for use
- Crosby - quality is free
- → Deming - quality is a ``total field``
- Feigenbaum - quality at the source
- All of the choices are correctly matched

Multiple Choice	*TB 09-75 Which of the following does not match well between...*

1198. award: 1.25 points

TB 09-76 Which of the following is not an element of the IS...
Which of the following is not an element of the ISO 9001 quality system?

- resource management
- documentation of a quality manual and procedures manual
- purchasing as one element of product realization
- design and development
- → market research

Multiple Choice	*TB 09-76 Which of the following is not an element of the IS...*

1199. award: 1.25 points

TB 09-77 Planning the product design and development proces...
Planning the product design and development process falls within which major activity in the ISO 9001 quality system?

- resource management
- → product realization
- management responsibility
- measurement, analysis, and improvement

Multiple Choice	*TB 09-77 Planning the product design and development proces...*

1200. award: 1.25 points

TB 09-78 Which of the following is not associated with the ...
Which of the following is not associated with the HACCP quality control system?

- identifying potential hazards
- enforced by the Canadian Food Inspection Agency
- designed for companies in the food processing industry
- identifying all regulatory action points
- → feedback of food quality based on customer surveys

Multiple Choice	*TB 09-78 Which of the following is not associated with the ...*

1201. award: 1.25 points

TB 09-79 Relative to traditional organizations, TQM involve...
Relative to traditional organizations, TQM involves;

I) greater orientation towards product rather than processes
II) more narrowly focused, specialized individual jobs
III) viewing suppliers as partners based on collaborative relations

- I
- II
- → III
- I and II
- I, II, and III

Multiple Choice	*TB 09-79 Relative to traditional organizations, TQM involve...*

1202. award: 4.25 points

TB 09-80 Process Improvement involves which of the followin...
Process Improvement involves which of the following?

I) process mapping
II) process design
III) process analysis
IV) process re-design

- I, II, III, IV
- → I, III, IV
- II, III, IV
- I, II, III
- III, IV

Multiple Choice	*TB 09-80 Process Improvement involves which of the followin...*

1203. award: 4.25 points

TB 09-81 Which of the following is not a goal of process im...
Which of the following is not a goal of process improvement?

- increasing customer satisfaction
- reduction of waste
- achieving higher quality
- → identifying a cause of the problem
- All are the goals.

Multiple Choice	*TB 09-81 Which of the following is not a goal of process im...*

1204. award: 4.25 points

TB 09-82 Which of the following is not a specific tool for ...
Which of the following is not a specific tool for solving quality problems?

- benchmarking
- check sheets
- Pareto analysis
- cause-and-effect diagrams
- → Taguchi charts

Multiple Choice	*TB 09-82 Which of the following is not a specific tool for ...*

1205. award: 4.25 points

TB 09-83 The tool that is useful in documenting the current...
The tool that is useful in documenting the current process is:

- a control chart
- a Pareto chart
- a check sheet
- → a flow diagram
- a cause-and-effect diagram

Multiple Choice	*TB 09-83 The tool that is useful in documenting the current...*

1206. award: 0.25 points

TB 09-84 The tool that is useful in the collection and orga...
The tool that is useful in the collection and organization of data is:

- a control chart
- a Pareto chart
- → a check sheet
- a flow chart
- a Histogram

Multiple Choice	*TB 09-84 The tool that is useful in the collection and orga...*

1207. award: 0.25 points

TB 09-85 The quality control improvement tool which disting...
The quality control improvement tool which distinguishes between the "important few" and the "trivial many" is:

- benchmarking.
- check sheets.
- → Pareto analysis.
- cause-and-effect diagrams.
- Process flow diagram.

Multiple Choice	*TB 09-85 The quality control improvement tool which disting...*

1208. award: 0.25 points

TB 09-86 Focusing attention on the most important problem a...
Focusing attention on the most important problem areas is referred to as:

- 5W2H approach
- quality assurance
- benchmarking
- → Pareto analysis
- cause-and-effect analysis

Multiple Choice	*TB 09-86 Focusing attention on the most important problem a...*

1209. award: 0.25 points

TB 09-87 A chart showing the number of occurrences by categ...
A chart showing the number of occurrences by category would be used in:

- → Pareto analysis
- interviewing
- cause-and-effect diagrams
- benchmarking
- none of the choices

Multiple Choice	*TB 09-87 A chart showing the number of occurrences by categ...*

1210. award: 0.25 points

TB 09-88 The quality control improvement tool which resembl...
The quality control improvement tool which resembles a "fishbone" is:

- run charts
- check sheets
- Pareto analysis
- → cause-and-effect diagrams
- scatter diagrams

Multiple Choice	*TB 09-88 The quality control improvement tool which resembl...*

1211. award: 0.25 points

TB 09-89 Cause-and-effect diagrams are sometimes called:I) ...
Cause-and-effect diagrams are sometimes called:

I) scatter diagrams
II) fishbone diagrams
III) Ishikawa diagrams
IV) flow diagrams

- I only
- I, II
- III only
- → II, III
- IV only

Multiple Choice	*TB 09-89 Cause-and-effect diagrams are sometimes called:I) ...*

1212. award: 0.25 points

TB 09-90 A fishbone diagram would be used to:
A fishbone diagram would be used to:

- → list potential causes of a problem
- diagram the key steps, or "bones" in a process
- diagram the skeleton of a fish
- plot the key elements, or "bones" of a problem
- plot the effects of causes over time

Multiple Choice	*TB 09-90 A fishbone diagram would be used to:*

1213. award: 0.25 points

TB 09-91 A run chart would be used to:
A run chart would be used to:

- → track the values of a variable over time
- list potential causes of an effect
- identify a source of problem
- collect and organize the data
- none of the choices

Multiple Choice	*TB 09-91 A run chart would be used to:*

1214. award: 4.25 points

TB 09-92 A quality improvement technique that involves the ...

A quality improvement technique that involves the sharing of thoughts and ideas in a way that encourages unrestrained collective thinking is:

- Pareto analysis
- benchmarking
- → brainstorming
- a control chart
- a check sheet

Multiple Choice	*TB 09-92 A quality improvement technique that involves the ...*

1215. award: 4.25 points

TB 09-93 Groups of workers who meet informally to discuss w...

Groups of workers who meet informally to discuss ways to improve products or processes are called:

- brainstorming teams
- → quality circles
- benchmarking teams
- continuous improvement teams
- quality teams

Multiple Choice	*TB 09-93 Groups of workers who meet informally to discuss w...*

1216. award: 4.25 points

TB 09-94 The process of identifying other organizations tha...

The process of identifying other organizations that are best at some facet of your operations, and then modeling your organization after them is known as:

- continuous improvement
- employee empowerment
- → benchmarking
- copycatting
- industrial espionage

Multiple Choice	*TB 09-94 The process of identifying other organizations tha...*

1217. award: 4.25 points

TB 09-95 According to the text, the typical difference betw...

According to the text, the typical difference between "quality circles" and "continuous improvement teams" is:

- Quality circles are more structured and formal.
- Continuous improvement teams work on product process only whereas quality circles focus on design and process.
- Continuous improvement teams use only engineers while quality circles use just the workers doing the work.
- → Quality circles are less empowered.
- There is no difference-they are just the same.

Multiple Choice	*TB 09-95 According to the text, the typical difference betw...*

1218. award: 0.25 points

TB 09-96 The 5W2H approach involves:
The "5W2H approach" involves:

- measuring width and height
- teams of 5 keyworkers, and 2 helpers
- a five step process
- examining 5 "wants" and 2 "haves"
- → asking questions

Multiple Choice	*TB 09-96 The 5W2H approach involves:*

1219. award: 0.25 points

TB 09-97 Asking questions about the current process in the ...
Asking questions about the current process in the hope that it will lead to important insights about why the current process isn't working as well as it could is called:

- → the 5W2H approach
- using quality circles
- benchmarking
- PDSA cycle
- none of the choices

Multiple Choice	*TB 09-97 Asking questions about the current process in the ...*

1220. award: 0.25 points

TB 09-98 Reaching consensus in teams may involve which of t...
Reaching consensus in teams may involve which of the following methods?

I) List reduction
II) 5W2H approach
III) Balance sheet approach
IV) Paired comparisons

- I, II, III
- → I, III, IV
- I, II, IV
- II, III, IV
- I, II, III, IV

Multiple Choice	*TB 09-98 Reaching consensus in teams may involve which of t...*

1221. award: 0.25 points

TB 10-01 The part of statistical quality control that occur...
The part of statistical quality control that occurs during the production process is known as acceptance sampling.

- True
- → False

True / False	*TB 10-01 The part of statistical quality control that occur...*

1222. award: **3.25 points**

TB 10-02 Quality control efforts that occur during producti...
Quality control efforts that occur during production are referred to as statistical process control.

→ True
False

True / False	*TB 10-02 Quality control efforts that occur during producti...*

1223. award: **3.25 points**

TB 10-03 Typically the production of high-cost, low-volume ...
Typically the production of high-cost, low-volume items require little quality control inspection.

True
→ False

True / False	*TB 10-03 Typically the production of high-cost, low-volume ...*

1224. award: **3.25 points**

TB 10-04 Low-cost, high-volume items often require more int...
Low-cost, high-volume items often require more intensive inspection.

True
→ False

True / False	*TB 10-04 Low-cost, high-volume items often require more int...*

1225. award: **3.25 points**

TB 10-05 The amount of inspection can range from no inspect...
The amount of inspection can range from no inspection at all to inspecting each item numerous times.

→ True
False

True / False	*TB 10-05 The amount of inspection can range from no inspect...*

1226. award: **3.25 points**

TB 10-06 The optimum level of inspection occurs when the co...
The optimum level of inspection occurs when the cost of passing defectives is minimized.

True
→ False

True / False	*TB 10-06 The optimum level of inspection occurs when the co...*

1227. award: 0.25 points

TB 10-07 The optimum level of inspection minimizes the sum ...
The optimum level of inspection minimizes the sum of inspection costs and the cost of passing defectives.

→ ○ True
○ False

True / False	*TB 10-07 The optimum level of inspection minimizes the sum ...*

1228. award: 0.25 points

TB 10-08 The frequency and quantity of inspection depends p...
The frequency and quantity of inspection depends primarily on the cost of inspection.

○ True
→ ○ False

True / False	*TB 10-08 The frequency and quantity of inspection depends p...*

1229. award: 0.25 points

TB 10-09 The amount of inspection needed is governed by the...
The amount of inspection needed is governed by the costs of inspection and the expected costs of passing defective items.

→ ○ True
○ False

True / False	*TB 10-09 The amount of inspection needed is governed by the...*

1230. award: 0.25 points

TB 10-10 The HACCP system provides guidelines for determini...
The HACCP system provides guidelines for determining critical inspection points.

→ ○ True
○ False

True / False	*TB 10-10 The HACCP system provides guidelines for determini...*

1231. award: 0.25 points

TB 10-11 The primary purpose of statistical process control...
The primary purpose of statistical process control is to detect defects in finished products before they are shipped to customers.

○ True
→ ○ False

True / False	*TB 10-11 The primary purpose of statistical process control...*

1232. award: **3.25 points**

TB 10-12 Statistical process control is based on comparing ...
Statistical process control is based on comparing periodic samples from a process to predetermined limits.

→ True
False

True / False	*TB 10-12 Statistical process control is based on comparing ...*

1233. award: **3.25 points**

TB 10-13 Variation in a sample statistic collected from a p...
Variation in a sample statistic collected from a process may be either random variation or assignable variation.

→ True
False

True / False	*TB 10-13 Variation in a sample statistic collected from a p...*

1234. award: **3.25 points**

TB 10-14 The main task in process control is to distinguish...
The main task in process control is to distinguish assignable from random variation.

→ True
False

True / False	*TB 10-14 The main task in process control is to distinguish...*

1235. award: **3.25 points**

TB 10-15 The variability of a process is equivalent to the ...
The variability of a process is equivalent to the distribution of samples of any size taken from the process.

True
→ False

True / False	*TB 10-15 The variability of a process is equivalent to the ...*

1236. award: **3.25 points**

TB 10-16 The sampling distribution of sample means from a p...
The sampling distribution of sample means from a process has less variability than the process distribution.

→ True
False

True / False	*TB 10-16 The sampling distribution of sample means from a p...*

award:
1237. **0.25 points**

TB 10-17 The sampling distribution can be assumed to be app...
The sampling distribution can be assumed to be approximately normal even when the underlying process distribution is not normally distributed, provided the sample size is sufficiently large.

→ ○ True
○ False

True / False	*TB 10-17 The sampling distribution can be assumed to be app...*

award:
1238. **0.25 points**

TB 10-18 Approximately 99.7% of sample means will fall with...
Approximately 99.7% of sample means will fall within ± two standard deviations of the process mean.

○ True
→ ○ False

True / False	*TB 10-18 Approximately 99.7% of sample means will fall with...*

award:
1239. **0.25 points**

TB 10-19 Assignable variation is variation due to a specifi...
Assignable variation is variation due to a specific cause, such as tool wear.

→ ○ True
○ False

True / False	*TB 10-19 Assignable variation is variation due to a specifi...*

award:
1240. **0.25 points**

TB 10-20 Control limits distinguish between non-random and ...
Control limits distinguish between non-random and assignable variability.

○ True
→ ○ False

True / False	*TB 10-20 Control limits distinguish between non-random and ...*

award:
1241. **0.25 points**

TB 10-21 Control limits are directly related to design spec...
Control limits are directly related to design specification limits.

○ True
→ ○ False

True / False	*TB 10-21 Control limits are directly related to design spec...*

1242. award: **3.25 points**

TB 10-22 A sample statistic that falls outside the control ...
A sample statistic that falls outside the control limits suggests that the process mean has changed.

→ ○ True
○ False

True / False	*TB 10-22 A sample statistic that falls outside the control ...*

1243. award: **3.25 points**

TB 10-23 A sample statistic that falls inside the control l...
A sample statistic that falls inside the control limits suggests assignable variation in the process.

○ True
→ ○ False

True / False	*TB 10-23 A sample statistic that falls inside the control l...*

1244. award: **3.25 points**

TB 10-24 Concluding that a process has not changed when it ...
Concluding that a process has not changed when it has is known as a Type I error.

○ True
→ ○ False

True / False	*TB 10-24 Concluding that a process has not changed when it ...*

1245. award: **3.25 points**

TB 10-25 Concluding that a process has changed when it has ...
Concluding that a process has changed when it has not is known as a Type II error.

○ True
→ ○ False

True / False	*TB 10-25 Concluding that a process has changed when it has ...*

1246. award: **3.25 points**

TB 10-26 Concluding that a process has changed when it has ...
Concluding that a process has changed when it has not is known as a Type I error.

→ ○ True
○ False

True / False	*TB 10-26 Concluding that a process has changed when it has ...*

award:
1247. **0.25 points**

TB 10-27 The probability of a Type I error is the probabili...
The probability of a Type I error is the probability of concluding that only randomness is present when assignable variation exists.

- True
- → False

True / False	*TB 10-27 The probability of a Type I error is the probabili...*

award:
1248. **0.25 points**

TB 10-28 If a point on a control chart falls outside one of...
If a point on a control chart falls outside one of the control limits, this suggests that the process output is non-random.

- → True
- False

True / False	*TB 10-28 If a point on a control chart falls outside one of...*

award:
1249. **0.25 points**

TB 10-29 The sample size chosen for control charts depends ...
The sample size chosen for control charts depends on the cost of inspection versus the expected cost of Type I and II errors.

- → True
- False

True / False	*TB 10-29 The sample size chosen for control charts depends ...*

award:
1250. **0.25 points**

TB 10-30 Range control charts are used to monitor process d...
Range control charts are used to monitor process dispersion.

- → True
- False

True / False	*TB 10-30 Range control charts are used to monitor process d...*

award:
1251. **0.25 points**

TB 10-31 Attributes are process characteristics that must b...
Attributes are process characteristics that must be measured rather than counted.

- True
- → False

True / False	*TB 10-31 Attributes are process characteristics that must b...*

award:
1252. **3.25 points**

TB 10-32 Control charts based on attribute data are for pro...
Control charts based on attribute data are for process characteristics that are counted rather than measured.

→ ○ True
○ False

True / False	*TB 10-32 Control charts based on attribute data are for pro...*

award:
1253. **3.25 points**

TB 10-33 Range charts are used to measure shifts in the pro...
Range charts are used to measure shifts in the process mean.

○ True
→ ○ False

True / False	*TB 10-33 Range charts are used to measure shifts in the pro...*

award:
1254. **3.25 points**

TB 10-34 Sample mean charts are used to measure shifts in p...
Sample mean charts are used to measure shifts in process dispersion.

○ True
→ ○ False

True / False	*TB 10-34 Sample mean charts are used to measure shifts in p...*

award:
1255. **3.25 points**

TB 10-35 The number of defective parts in a sample is a pro...
The number of defective parts in a sample is a process characteristic that is counted rather than measured.

→ ○ True
○ False

True / False	*TB 10-35 The number of defective parts in a sample is a pro...*

award:
1256. **3.25 points**

TB 10-36 A p-chart is used to monitor the fraction of defec...
A *p*-chart is used to monitor the fraction of defectives in the output of a process.

→ ○ True
○ False

True / False	*TB 10-36 A p-chart is used to monitor the fraction of defec...*

award:
1257. **0.25 points**

TB 10-37 A c-chart is used to monitor the number of defecti...
A *c*-chart is used to monitor the number of defectives in the output of a process.

- True
- → False

True / False	*TB 10-37 A c-chart is used to monitor the number of defecti...*

award:
1258. **0.25 points**

TB 10-38 A c-chart is used to monitor the number of defects...
A *c*-chart is used to monitor the number of defects per unit of process output.

- → True
- False

True / False	*TB 10-38 A c-chart is used to monitor the number of defects...*

award:
1259. **0.25 points**

TB 10-39 Design specifications are equivalent to control li...
Design specifications are equivalent to control limits.

- True
- → False

True / False	*TB 10-39 Design specifications are equivalent to control li...*

award:
1260. **0.25 points**

TB 10-40 Control limits are specifications established by e...
Control limits are specifications established by engineering design or customer requirements.

- True
- → False

True / False	*TB 10-40 Control limits are specifications established by e...*

award:
1261. **0.25 points**

TB 10-41 Process capability compares process variability...
"Process capability" compares "process variability" to the "design specifications".

- → True
- False

True / False	*TB 10-41 Process capability compares process variability...*

award:
1262. **3.25 points**

TB 10-42 Control limits and process variability are directl...
Control limits and process variability are directly related.

→ True
False

True / False	*TB 10-42 Control limits and process variability are directl...*

award:
1263. **3.25 points**

TB 10-43 There is no direct link between design specificati...
There is no direct link between design specifications and statistical process control limits.

→ True
False

True / False	*TB 10-43 There is no direct link between design specificati...*

award:
1264. **3.25 points**

TB 10-44 The output of a process may not conform to design ...
The output of a process may not conform to design specifications even though the process may be statistically "in control".

→ True
False

True / False	*TB 10-44 The output of a process may not conform to design ...*

award:
1265. **3.25 points**

TB 10-45 Control limits are statistical limits that reflect...
Control limits are statistical limits that reflect the extent to which sample statistics such as means and ranges can vary due to randomness alone.

→ True
False

True / False	*TB 10-45 Control limits are statistical limits that reflect...*

award:
1266. **3.25 points**

TB 10-46 Process variability is a key factor in process cap...
Process variability is a key factor in process capability.

True
→ False

True / False	*TB 10-46 Process variability is a key factor in process cap...*

award:
1267. **0.25 points**

TB 10-47 A process is capable if the process output falls...
A process is "capable" if the process output falls within the design specification.

→ ○ True
○ False

True / False	*TB 10-47 A process is capable if the process output falls...*

award:
1268. **0.25 points**

TB 10-48 The process capability index, indicated by Cpis ca...
The process capability index, indicated by *Cp*is calculated as the ratio of the design specification width to the process width.

→ ○ True
○ False

True / False	*TB 10-48 The process capability index, indicated by Cpis ca...*

award:
1269. **0.25 points**

TB 10-49 The process capability index, indicated by Cpkis u...
The process capability index, indicated by *Cpk*is used only when the process is centred.

○ True
→ ○ False

True / False	*TB 10-49 The process capability index, indicated by Cpkis u...*

award:
1270. **0.25 points**

TB 10-50 When a process is not centred, its capability shou...
When a process is not centred, its capability should be based on considering the upper and lower design specifications separately and not just the overall design specification width. The symbol for this case is *Cpk*.

→ ○ True
○ False

True / False	*TB 10-50 When a process is not centred, its capability shou...*

award:
1271. **0.25 points**

TB 10-51 In order for a process to be capable, it must have...
In order for a process to be capable, it must have a capability ratio of at least 1.00.

→ ○ True
○ False

True / False	*TB 10-51 In order for a process to be capable, it must have...*

1272. award: 0.25 points

TB 10-52 A process capability index (Cp) of 0.70 indicates ...
A process capability index (C_p) of 0.70 indicates that a process is capable of producing to design specifications.

- True
- → False

True / False	*TB 10-52 A process capability index (Cp) of 0.70 indicates ...*

1273. award: 0.25 points

TB 10-53 Six sigma is similar to continuous improvement of ...
Six sigma is similar to continuous improvement of TQM.

- → True
- False

True / False	*TB 10-53 Six sigma is similar to continuous improvement of ...*

1274. award: 0.25 points

TB 10-54 The optimum level of inspection for quality contro...
The optimum level of inspection for quality control is where the:

- cost of inspection is minimum
- cost of passing defectives is minimum
- total cost of inspection and defectives is maximum
- → sum of total cost of inspection and defectives cost is minimum
- difference in inspection and defectives costs is minimum

Multiple Choice	*TB 10-54 The optimum level of inspection for quality contro...*

1275. award: 0.25 points

TB 10-55 The purpose of control charts is to:
The purpose of control charts is to:

- estimate the proportion of output that is acceptable
- weed out defective items
- determine if the output is within specifications
- → distinguish between random variation and assignable variation in the process
- all of these

Multiple Choice	*TB 10-55 The purpose of control charts is to:*

1276. award: 0.25 points

TB 10-56 Which of the following is not a step in the qualit...
Which of the following is not a step in the quality control planning process?

- define the quality characteristic to be controlled
- determine a quality control point in the process
- → eliminate all defects found
- plan how inspection is to be done
- all of the choices are steps.

Multiple Choice	*TB 10-56 Which of the following is not a step in the qualit...*

1277. award: 0.25 points

TB 10-57 The term 2 sigma limits in the context of a cont...
The term "2 sigma limits" in the context of a control chart refers to the variability of the:

- process
- population
- sample
- → sampling distribution
- none of the choices

Multiple Choice	*TB 10-57 The term 2 sigma limits in the context of a cont...*

1278. award: 0.25 points

TB 10-58 The probability of concluding that an assignable v...
The probability of concluding that an assignable variation exists when only random variation is present is:

I. the probability of a Type I error
II. known as the alpha risk
III. highly unlikely
IV. the sum of probabilities in the two tails of the distribution

- I and II only
- I and IV only
- II and III only
- → I, II, and IV
- I, III, and IV

Multiple Choice	*TB 10-58 The probability of concluding that an assignable v...*

1279. award: 0.25 points

TB 10-59 Three sigma control limits (compared to two sigma ...
Three sigma control limits (compared to two sigma limits) tend to have what impact on error probabilities?

- → increase the Type II and decrease the Type I
- decrease the Type II and increase the Type I
- decrease the Type I and Type II
- increase the Type I and Type II
- have little or no impact

Multiple Choice	*TB 10-59 Three sigma control limits (compared to two sigma ...*

1280. award: 0.25 points

TB 10-60 A control chart used to monitor the process mean i...
A control chart used to monitor the process mean is the:

- *p*-chart
- *R*-chart
- → *x*-bar chart
- *c*-chart
- Gantt chart

Multiple Choice	*TB 10-60 A control chart used to monitor the process mean i...*

award:
1281. **1.25 points**

TB 10-61 Sample mean control charts can be created using:I....
Sample mean control charts can be created using:

I. the process standard deviation
II. the standard deviation of the sampling distribution
III. the sample range
IV. the average of sample ranges

- I or II
- I or III
- II or III
- II or IV
- → I or II or IV

Multiple Choice	*TB 10-61 Sample mean control charts can be created using:I....*

award:
1282. **1.25 points**

TB 10-62 A shift in the process mean for a measured charact...
A shift in the process mean for a measured characteristic would most likely be detected by a(n):

- *p*-chart
- → *x*-bar chart
- *c*-chart
- *R*-chart
- *s*-chart

Multiple Choice	*TB 10-62 A shift in the process mean for a measured charact...*

award:
1283. **1.25 points**

TB 10-63 A point which is outside of the lower control limi...
A point which is outside of the lower control limit on an *R*-chart:

- is an indication that no cause of variation is present
- should be ignored because it signifies better average quality
- → should be investigated because it could indicate that an improved method has been used
- should be ignored unless another point is outside that limit
- is impossible because the lower limit is always zero

Multiple Choice	*TB 10-63 A point which is outside of the lower control limi...*

award:
1284. **1.25 points**

TB 10-64 A point that plots below the lower control limit o...
A point that plots below the lower control limit on the range chart:

I. should be ignored because lower variation is desirable.
II. may be an indication that process variation has decreased.
III. should be investigated for assignable cause.

- I and II
- I and III
- → II and III
- II only
- I, II, and III

Multiple Choice	*TB 10-64 A point that plots below the lower control limit o...*

award:
1285. **6.25 points**

TB 10-65 The range chart (R-chart) is most likely to detect...
The range chart (*R*-chart) is most likely to detect a change in:

- proportion
- mean
- number defective
- → process variability
- sample size

Multiple Choice	*TB 10-65 The range chart (R-chart) is most likely to detect...*

award:
1286. **6.25 points**

TB 10-66 Which of the following quality control sample stat...
Which of the following quality control sample statistics measures a quality characteristic which is an attribute?

- mean
- variance
- standard deviation
- range
- → proportion

Multiple Choice	*TB 10-66 Which of the following quality control sample stat...*

award:
1287. **6.25 points**

TB 10-67 A control chart used to monitor the fraction of de...
A control chart used to monitor the fraction of defectives generated by a process is the:

- → *p*-chart
- *R*-chart
- *x*-bar chart
- *c*-chart
- Gantt chart

Multiple Choice	*TB 10-67 A control chart used to monitor the fraction of de...*

award:
1288. **6.25 points**

TB 10-68 For which of the following would a p-chart be used...
For which of the following would a *p*-chart be used?

- monitor average shrinkage
- monitor dispersion in sample data
- → monitor the fraction defectives in a sample
- monitor the number of defects per unit
- monitor the range of values

Multiple Choice	*TB 10-68 For which of the following would a p-chart be used...*

award:
1289. **0.25 points**

TB 10-69 A c-chart is used for:
A *c*-chart is used for:

- means
- ranges
- percent defective
- fraction defective per unit
- → number of defects per unit

Multiple Choice	*TB 10-69 A c-chart is used for:*

award:
1290. **0.25 points**

TB 10-70 A control chart used to monitor the number of defe...
A control chart used to monitor the number of defects per unit is the:

- *p*-chart
- *R*-chart
- *x*-bar chart
- → *c*-chart
- Gantt chart

Multiple Choice	*TB 10-70 A control chart used to monitor the number of defe...*

award:
1291. **0.25 points**

TB 10-71 Which statement is an accurate description of a pr...
Which statement is an accurate description of a process that is "capable"?

- no process variability is evident
- process variability is greater than variation allowed by design specifications
- → process variability is less than variation allowed by design specifications
- assignable variation is less than random variation
- assignable variation is greater than random variation

Multiple Choice	*TB 10-71 Which statement is an accurate description of a pr...*

award:
1292. **0.25 points**

TB 10-72 Studies on a bottle-filling machine indicates it f...
Studies on a bottle-filling machine indicates it fill bottles to a mean of 16 ounces with a standard deviation of 0.10 ounces. What is/are the process specification(s), assuming the *Cp*index of 1?

- 0.10 ounces
- 0.60 ounces
- 16.0 ounces
- → 16.0 ounces plus or minus 0.30 ounces
- none of the choices

Multiple Choice	*TB 10-72 Studies on a bottle-filling machine indicates it f...*

1293. award: 3.25 points

TB 10-73 The six sigma quality improvement methodology is c...

The six sigma quality improvement methodology is called:

- PDSA
- → DMAIC
- 5W2H
- Continuous improvement system
- None of the choices

Multiple Choice	*TB 10-73 The six sigma quality improvement methodology is c...*

1294. award: 3.25 points

TB 10-74 The DMAIC methodology involves all but which of th...

The DMAIC methodology involves all but which of the following?

- Define
- Measure
- Analyze
- → Improvise
- Control

Multiple Choice	*TB 10-74 The DMAIC methodology involves all but which of th...*

A design engineer wants to construct a sample mean...

A design engineer wants to construct a sample mean chart for controlling the service life of one of the types of light bulbs his company produces. He knows from numerous previous samples that this service life is normally distributed with a mean of 500 hours and a standard deviation of 20 hours. On three recent production batches, he tested service life on random samples of four bulbs, with these results:

Sample	SERVICE LIFE (hours)			
1	495	500	505	500
2	525	515	505	515
3	470	480	460	470

Section Break	*A design engineer wants to construct a sample mean...*

1295. award: 3.25 points

TB 10-75 What is the sample mean service life for sample 2?

What is the sample mean service life for sample 2?

- 460 hours
- 495 hours
- 500 hours
- → 515 hours
- 525 hours

Multiple Choice	*TB 10-75 What is the sample mean service life for sample 2?*

1296. award: 6.25 points

TB 10-76 What is the mean of the sampling distribution of s...

What is the mean of the sampling distribution of sample means for whenever service life is in control?

- 250 hours
- 470 hours
- 495 hours
- → 500 hours
- 515 hours

Multiple Choice	*TB 10-76 What is the mean of the sampling distribution of s...*

1297. award: 6.25 points

TB 10-77 What is the standard deviation of the sampling dis...

What is the standard deviation of the sampling distribution of sample means for whenever service life is in control?

- 5 hours
- 6.67 hours
- → 10 hours
- 11.55 hours
- 20 hours

Multiple Choice	*TB 10-77 What is the standard deviation of the sampling dis...*

1298. award: 6.25 points

TB 10-78 If he uses upper and lower control limits of 520 a...

If he uses upper and lower control limits of 520 and 480 hours, what is his risk (alpha) of concluding service life is out of control when it is actually under control (Type I error)?

- 0.0026
- → 0.0456
- 0.3174
- 0.6826
- 0.9544

Multiple Choice	*TB 10-78 If he uses upper and lower control limits of 520 a...*

1299. award: 6.25 points

TB 10-79 If he uses upper and lower control limits of 520 a...

If he uses upper and lower control limits of 520 and 480 hours, on what sample(s) (if any) does service life appear to be out of control?

- sample 1
- sample 2
- → sample 3
- both samples 2 and 3
- none

Multiple Choice	*TB 10-79 If he uses upper and lower control limits of 520 a...*

A Quality Analyst wants to construct a sample mean...

A Quality Analyst wants to construct a sample mean chart for controlling a packaging process. He knows from past experience that whenever this process is under control, package weight is normally distributed with a mean of twenty ounces and a standard deviation of two ounces. Each day last week, he randomly selected four packages and weighed each with the following results:

Day	WEIGHT (ounces)			
Monday	23	22	23	24
Tuesday	23	21	19	21
Wednesday	20	19	20	21
Thursday	18	19	20	19
Friday	18	20	22	20

Section Break	*A Quality Analyst wants to construct a sample mean...*

1300. award: **0.25 points**

TB 10-80 What is the sample mean package weight for Thursda...

What is the sample mean package weight for Thursday?

→ ○ 19 ounces
○ 20 ounces
○ 20.6 ounces
○ 21 ounces
○ 23 ounces

Multiple Choice	*TB 10-80 What is the sample mean package weight for Thursda...*

1301. award: **0.25 points**

TB 10-81 What is the mean of the sampling distribution of s...

What is the mean of the sampling distribution of sample means for whenever this process is under control?

○ 18 ounces
○ 19 ounces
→ ○ 20 ounces
○ 21 ounces
○ 22 ounces

Multiple Choice	*TB 10-81 What is the mean of the sampling distribution of s...*

1302. award: **0.25 points**

TB 10-82 What is the standard deviation of the sampling dis...

What is the standard deviation of the sampling distribution of sample means for whenever this process is under control?

○ 0.1 ounces
○ 0.4 ounces
○ 0.5 ounces
→ ○ 1 ounce
○ 2 ounces

Multiple Choice	*TB 10-82 What is the standard deviation of the sampling dis...*

1303. award: 4.25 points

TB 10-83 If he uses upper and lower control limits of 22 an...

If he uses upper and lower control limits of 22 and 18 ounces, what is his risk (alpha) of concluding this process is out of control when it is actually in control (Type I error)?

- 0.0026
- → 0.0456
- 0.3174
- 0.6826
- 0.9544

Multiple Choice	*TB 10-83 If he uses upper and lower control limits of 22 an...*

1304. award: 4.25 points

TB 10-84 If he uses upper and lower control limits of 22 an...

If he uses upper and lower control limits of 22 and 18 ounces, on what day(s), if any, does this process appear to be out of control?

- → Monday
- Tuesday
- Monday and Tuesday
- Monday, Tuesday, and Thursday
- none

Multiple Choice	*TB 10-84 If he uses upper and lower control limits of 22 an...*

A Quality Analyst wants to construct a control cha...

A Quality Analyst wants to construct a control chart for determining whether three machines, all producing the same product, are under control with regard to a particular quality variable. Accordingly, he sampled four units of output from each machine, with the following results:

Machine		Measurements			
#1		17	15	15	17
#2		16	25	18	25
#3		23	24	23	22

Section Break	*A Quality Analyst wants to construct a control cha...*

1305. award: 4.25 points

TB 10-85 What is the sample mean for machine #1?

What is the sample mean for machine #1?

- 15
- → 16
- 17
- 21
- 23

Multiple Choice	*TB 10-85 What is the sample mean for machine #1?*

1306. award: 6.25 points

TB 10-86 What is the estimate of the process mean for whene...

What is the estimate of the process mean for whenever it is under control?

- 16
- 19
- → 20
- 21
- 23

Multiple Choice	*TB 10-86 What is the estimate of the process mean for whene...*

1307. award: 6.25 points

TB 10-87 What is the sample average range based upon this l...

What is the sample average range based upon this limited sample?

- 13.0
- → 4.33
- 5.4
- 4.2
- 2.0

Multiple Choice	*TB 10-87 What is the sample average range based upon this l...*

1308. award: 6.25 points

TB 10-88 What are the x-bar chart upper and lower control l...

What are the *x*-bar chart upper and lower control limits?

- 22 and 18
- 23.29 and 16.71
- 23.5 and 16.5
- → 23.16 and 16.84
- 24 and 16

Multiple Choice	*TB 10-88 What are the x-bar chart upper and lower control l...*

1309. award: 6.25 points

TB 10-89 For upper and lower control limits of 23.29 and 16...

For upper and lower control limits of 23.29 and 16.71, which machine(s), if any, appear(s) to have an out-of-control process mean?

- → machine #1
- machine #2
- machine #3
- all of the machines
- none of the machines

Multiple Choice	*TB 10-89 For upper and lower control limits of 23.29 and 16...*

The Chair of the Operations Management Department ...

The Chair of the Operations Management Department at Quality University wants to construct a *p*-chart for determining whether the four instructors teaching the basic P/OM course are under control with regard to the number of students who fail the course. Accordingly, he sampled 100 final grades from last year for each instructor, with the following results:

INSTRUCTOR	NUMBER OF FAILURES
Prof. A	13
Prof. B	0
Prof. C	11
Prof. D	16

Section Break	*The Chair of the Operations Management Department ...*

1310. award: **0.25 points**

TB 10-90 What is the sample proportion of failures for Prof...

What is the sample proportion of failures for Prof. D?

- 0
- .04
- .11
- .13
- → .16

Multiple Choice	*TB 10-90 What is the sample proportion of failures for Prof...*

1311. award: **0.25 points**

TB 10-91 What is the estimate of the mean proportion of fai...

What is the estimate of the mean proportion of failures, ($\bar{p}$) for these instructors?

- → .10
- .11
- .13
- .16
- .40

Multiple Choice	*TB 10-91 What is the estimate of the mean proportion of fai...*

1312. award: **0.25 points**

TB 10-92 What is the estimate of the standard deviation of ...

What is the estimate of the standard deviation of the sampling distribution for an instructor's sample proportion of failures?

- .0075
- → .03
- .075
- .3
- .75

Multiple Choice	*TB 10-92 What is the estimate of the standard deviation of ...*

1313. award: 3.25 points

TB 10-93 What are the .95 (5% alpha risk) upper and lower c...

What are the .95 (5% alpha risk) upper and lower control limits for the *p*-chart?

- .95 and .05
- .13 and .07
- → .1588 and .0412
- .16 and .04
- .1774 and .0226

Multiple Choice	*TB 10-93 What are the .95 (5% alpha risk) upper and lower c...*

1314. award: 3.25 points

TB 10-94 Using .95 control limits, (5% alpha risk), which i...

Using .95 control limits, (5% alpha risk), which instructor(s), if any, should he conclude is (are) out of control?

- none
- Prof. B only
- Prof. D only
- → both Prof. B and Prof. D
- all

Multiple Choice	*TB 10-94 Using .95 control limits, (5% alpha risk), which i...*

A Quality Analyst wants to construct a control cha...

A Quality Analyst wants to construct a control chart for determining whether four machines, all producing the same product, are under control with regard to a particular quality attribute. Accordingly, she inspected 1,000 units of output from each machine in random samples, with the following results:

MACHINE	TOTAL DEFECTIVES
#1	23
#2	15
#3	29
#4	13

Section Break	*A Quality Analyst wants to construct a control cha...*

1315. award: 3.25 points

TB 10-95 What is the sample proportion of defectives for ma...

What is the sample proportion of defectives for machine #1?

- → .023
- .02
- .0115
- .0058
- .005

Multiple Choice	*TB 10-95 What is the sample proportion of defectives for ma...*

1316. award: 4.25 points

TB 10-96 What is the estimate of the process proportion of ...

What is the estimate of the process proportion of defectives for whenever it is under control?

- .08
- .06
- .04
- → .02
- .01

Multiple Choice	*TB 10-96 What is the estimate of the process proportion of ...*

1317. award: 4.25 points

TB 10-97 What is the estimate of the standard deviation of ...

What is the estimate of the standard deviation of the sampling distribution of sample proportion for whenever this process is under control?

- .016
- .00016
- .04
- → .0044
- .00002

Multiple Choice	*TB 10-97 What is the estimate of the standard deviation of ...*

1318. award: 4.25 points

TB 10-98 What are the control chart upper and lower control...

What are the control chart upper and lower control limits for an alpha risk of .05?

- .0272 and .0128
- → .0287 and .0113
- .029 and .013
- .0303 and .0097
- .0332 and .0068

Multiple Choice	*TB 10-98 What are the control chart upper and lower control...*

1319. award: 4.25 points

TB 10-99 For upper and lower control limits of .026 and .01...

For upper and lower control limits of .026 and .014, which machine(s), if any, appear(s) to be out-of-control for process proportion of defectives?

- machine #3 only
- machine #4 only
- → machines #3 and #4
- machines #2 and #3
- none of the machines

Multiple Choice	*TB 10-99 For upper and lower control limits of .026 and .01...*

1320. award: **1.25 points**

TB 10-100 Studies on a machine that molds plastic water pipe...

Studies on a machine that molds plastic water pipe indicate that when it is injecting 1-inch diameter pipe, the process standard deviation is 0.05 inches. The one-inch pipe has a specification of 1-inch plus or minus 0.10 inch. What is the process capability index (*Cp*)?

- 0.50
- → 0.67
- 1.00
- 2.00
- none of the choices

Multiple Choice	*TB 10-100 Studies on a machine that molds plastic water pipe...*

1321. award: **1.25 points**

TB 10-101 The specification limits for a product are 8 cm an...

The specification limits for a product are 8 cm and 10 cm. A process that produces the product has a mean of 9.5 cm and a standard deviation of 0.2 cm. What is the process capability, *Cpk*?

- 3.33
- 1.67
- → 0.83
- 2.50
- none of the choices

Multiple Choice	*TB 10-101 The specification limits for a product are 8 cm an...*

1322. award: **1.25 points**

TB 10-102 The specifications for a product are 6 mm &n...

The specifications for a product are 6 mm $\pm$ 0.1 mm. The process is known to operate at a mean of 6.05 mm with a standard deviation of 0.01 mm. What is the *Cpk*for this process?

- 3.33
- → 1.67
- 5.00
- 2.50
- none of the choices

Multiple Choice	*TB 10-102 The specifications for a product are 6 mm &n...*

1323. award: **3.25 points**

TB 10-103 A process that produces explosion-proof fittings h...

A process that produces explosion-proof fittings has an output that is normally distributed with a mean of 6 cm. and a standard deviation of .01 cm. A job is to be run that requires 200 fittings.

(i) Determine three sigma control limits for an x-bar chart assuming a sample size of 10.
(ii) If specifications are 5.98 to 6.02, what run size should be used for this job so that the expected number of good pieces is 200, assuming the process is in control?

(i)	$6 \pm 3\frac{.01}{\sqrt{10}} = 6 \pm .0095$
(ii)	The specs are at ± 2 process standard deviations, which would include 95.44 percent of the output. Thus, .9544Q = 200, so Q = 209.6 or 210.

Short Answer *TB 10-103 A process that produces explosion-proof fittings h...*

1324. award: 4.25 points

TB 10-104 Four samples of three observations each have been ...

Four samples of three observations each have been taken, with actual measurements (in centimetres) shown below. Construct three sigma mean and range charts, and determine if corrective action is needed.

	Sample		
1	2	3	4
12.3	11.9	12.0	12.1
12.2	12.2	12.2	11.8
12.1	12.2	11.8	11.8

	Sample		
1	2	3	4
12.3	11.9	12.0	12.1
12.2	12.2	12.2	11.8
12.1	12.2	11.8	11.8

Ans:

	Sample			
	1	2	3	4
Mean	12.2	12.1	12.0	11.9
Range	.2	.3	.4	.3

Grand mean = 12.05 R-bar = .30

Using factors from Table 10-2, control limits are:

Mean: $12.05 \pm 1.02(.30) = 12.05 \pm .306$

Range: $UCL = 2.57(.30) = 0.771$

$LCL = 0$

Although all points are within the limits, a plot of the sample means strongly suggests non-randomness.

Short Answer	*TB 10-104 Four samples of three observations each have been ...*

1325. award: 6.25 points

TB 10-105 A town's department of public works is concerned a...

A town's department of public works is concerned about adverse public reaction to a sewer project that is currently in progress. Because of this, the Commissioner of Public Works has authorized a weekly survey to be conducted of town residents. Each week, a sample of 100 residents is questioned on their feelings towards the project. The results to date are shown below. Analyze this data using an appropriate control chart with a 5% risk of Type I error. Is the community sentiment stable?

	Week							
Number	1	2	3	4	5	6	7	8
Opposed	10	8	12	6	4	14	8	10

[Use a p-chart.
Since the sample size is 100, the quantities can easily be converted to fraction defective

$$\text{p-bar} = \frac{.72}{8} = .09$$

$$\text{Control limits are}: .09 \pm 1.96\sqrt{\frac{.09(.91)}{100}} = .09 \pm .056 \text{ or } .034 \text{ to } .146$$

Sentiment appears to be stable, in that none of the eight weeks is outside these limits.

Short Answer *TB 10-105 A town's department of public works is concerned a...*

1326. award: 6.25 points

TB 10-106 Construct the appropriate control chart for the sa...

Construct the appropriate control chart for the sample observations listed below, and determine if the process is in control using two sigma limits.

Observation	1	2	3	4	5	6	7	8	9	10	11
No. of defects per unit:	9	4	3	5	6	3	4	2	3	2	3

.

[c-chart

$$\bar{c} = \frac{44}{11} = 4 \quad \bar{c} \pm 2\sqrt{c} = 4 \pm 2\sqrt{4} = 0 \text{ to } 8.$$

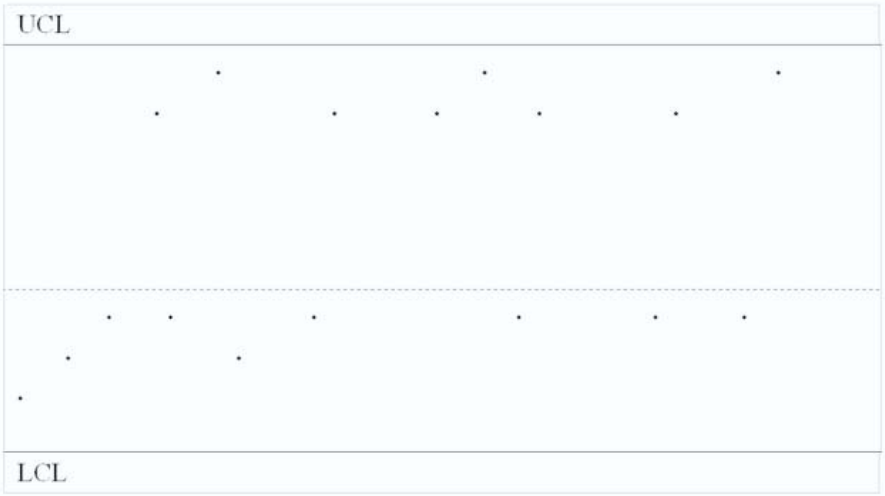
The initial value is outside the upper control limit.

Short Answer *TB 10-106 Construct the appropriate control chart for the sa...*

1327. award: 0.25 points

TB 10-107 The data below represent sample means which w...

The data below represent sample means which were taken at periodic intervals and plotted on a control chart. Is the output random?



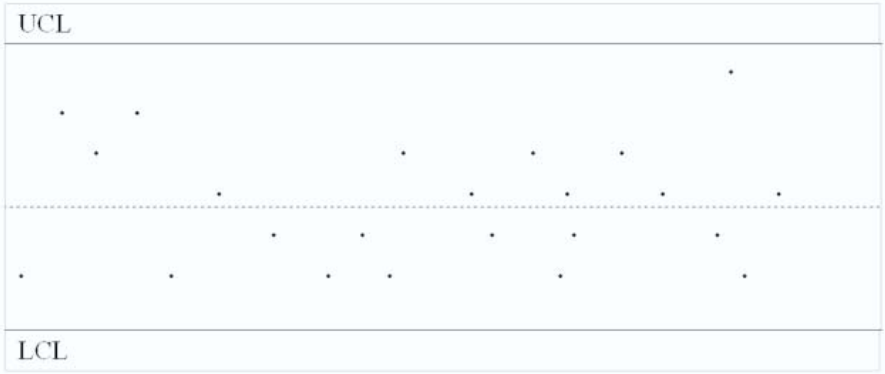
1. Since all points are within the control limits, this suggests randomness.

Short Answer	*TB 10-107 The data below represent sample means which w...*

1328. award: 0.25 points

TB 10-108 Given the following control chart, would you say t...

Given the following control chart, would you say that the process appears to be performing appropriately?



A process appears to be performing appropriately if two conditions are met:

(1) all points are within the limits and (2) no patterns. These conditions are met, based on visual inspection.

Short Answer	*TB 10-108 Given the following control chart, would you say t...*

Given the following process control data for a nor...
Given the following process control data for a normally distributed quality variable (three samples of size four each):

Machine		Measurements			
#1		15	14	15	12
#2		18	16	20	16
#3		16	17	16	17

Section Break *Given the following process control data for a nor...*

award:
1329. **1.25 points**

TB 10-109 What is the sample mean for sample #1? #2? #3?
What is the sample mean for sample #1? #2? #3?

14; 17.5; 16.5

Short Answer *TB 10-109 What is the sample mean for sample #1? #2? #3?*

award:
1330. **1.25 points**

TB 10-110 If the process is known to have a mean of 15 and a...
If the process is known to have a mean of 15 and a standard deviation of 3, what is the mean of the sampling distribution of sample means for whenever this process is under control? The standard deviation?

15; 1.5

Short Answer *TB 10-110 If the process is known to have a mean of 15 and a...*

award:
1331. **1.25 points**

TB 10-111 If the process is known to have a mean of 15 and a...
If the process is known to have a mean of 15 and a standard deviation of 3, what is the alpha risk (probability of Type I error) for upper and lower control limits of 16.5 and 13.5 respectively? 18 and 12? 19.5 and 10.5?

.3174; .0456; .0026

Short Answer *TB 10-111 If the process is known to have a mean of 15 and a...*

1332. award: 4.25 points

TB 10-112 If the process is known to have a mean of 15 and a...

If the process is known to have a mean of 15 and a standard deviation of 3, what are the three sigma upper and lower control limits for an x-bar chart?

$$15 \pm 3(3/\sqrt{4}) = 15 \pm 4.5$$

Lower limit = 10.5
Upper limit = 19.5

Short Answer	*TB 10-112 If the process is known to have a mean of 15 and a...*

1333. award: 4.25 points

TB 10-113 If the process is known to have a mean of 15 and a...

If the process is known to have a mean of 15 and a standard deviation of 3, using three sigma control limits, do any of the sample means indicate an out-of-control process mean?

No, all are within the limits.

Short Answer	*TB 10-113 If the process is known to have a mean of 15 and a...*

Given the following process control data for a qua...

Given the following process control data for a quality attribute (three samples of size 400 each):

SAMPLE	DEFECTIVES
#1	36
#2	32
#3	52

Section Break	*Given the following process control data for a qua...*

1334. award: 4.25 points

TB 10-114 What is the sample proportion of defectives for sa...

What is the sample proportion of defectives for sample #1? #2? #3?

.09; .08; .13

Short Answer	*TB 10-114 What is the sample proportion of defectives for sa...*

1335. award: 0.25 points

TB 10-115 If the process is known to produce 11 percent defe...
If the process is known to produce 11 percent defectives on average, what is the mean of the sampling distribution of sample proportions for whenever this process is under control? The standard deviation?

.11; .0156

Short Answer *TB 10-115 If the process is known to produce 11 percent defe...*

1336. award: 0.25 points

TB 10-116 If the process is known to produce 11 percent defe...
If the process is known to produce 11 percent defectives on average, what is the alpha risk (probability of Type I error) for upper and lower control limits of .1256 and .0944 respectively? .1412 and .0788? .1568 and .0632?

.3174; .0456; .0026

Short Answer *TB 10-116 If the process is known to produce 11 percent defe...*

1337. award: 0.25 points

TB 10-117 If the process is known to produce 11 percent defe...
If the process is known to produce 11 percent defectives on average, what are the upper and lower control limits for an alpha risk of .10? .05? .01?

.1357 and .0843; .1406 and .0794; .1502 and .0698

Short Answer *TB 10-117 If the process is known to produce 11 percent defe...*

1338. award: 0.25 points

TB 10-118 If the process is known to produce 11 percent defe...
If the process is known to produce 11 percent defectives on average, using three sigma control limits, do any of the sample proportions indicate an out-of-control process proportion of defectives?

No, all are within limits.

Short Answer *TB 10-118 If the process is known to produce 11 percent defe...*

1339. award: 0.25 points

TB 10-119 If the process proportion of defectives is unknown...
If the process proportion of defectives is unknown, what is the estimate of it?

.10

Short Answer *TB 10-119 If the process proportion of defectives is unknown...*

1340. award: 3.25 points

TB 10-120 If the process proportion of defectives is unknown...
If the process proportion of defectives is unknown, what is the alpha risk (probability of Type I error) for upper and lower control limits of .115 and .085 respectively? .13 and .07? .145 and .055?

.3174; .0456; .0026

Short Answer	*TB 10-120 If the process proportion of defectives is unknown...*

1341. award: 3.25 points

TB 10-121 If the process proportion of defectives is unknown...
If the process proportion of defectives is unknown, what are the upper and lower control limits for an alpha risk of .10? .05? .01?

.1247 and .0753; .1294 and .0706; .1387 and .0613

Short Answer	*TB 10-121 If the process proportion of defectives is unknown...*

1342. award: 3.25 points

TB 10-122 If the process proportion of defectives is unknown...
If the process proportion of defectives is unknown, using .10 alpha risk control limits, do any of the sample proportions indicate an out-of-control process proportion of defectives?

Yes: #3

Short Answer	*TB 10-122 If the process proportion of defectives is unknown...*

1343. award: 3.25 points

TB 10S-01 Acceptance sampling is applied to batches of items...
Acceptance sampling is applied to batches of items during the production process.

- True
- → False

True / False	*TB 10S-01 Acceptance sampling is applied to batches of items...*

1344. award: 3.25 points

TB 10S-02 Inspection both before and after production involv...
Inspection both before and after production involves acceptance sampling procedures.

- → True
- False

True / False	*TB 10S-02 Inspection both before and after production involv...*

1345. award: 0.25 points

TB 10S-03 Inspection that occurs during the production proce...
Inspection that occurs during the production process is known as acceptance sampling.

- True
- → False

True / False	*TB 10S-03 Inspection that occurs during the production proce...*

1346. award: 0.25 points

TB 10S-04 The purpose of acceptance sampling is to decide wh...
The purpose of acceptance sampling is to decide whether a batch of items satisfies predetermined standards.

- → True
- False

True / False	*TB 10S-04 The purpose of acceptance sampling is to decide wh...*

1347. award: 0.25 points

TB 10S-05 If a lot, or batch, is rejected during acceptanc...
If a lot, or batch, is "rejected" during acceptance sampling, the lot will usually be thrown away.

- True
- → False

True / False	*TB 10S-05 If a lot, or batch, is rejected during acceptanc...*

1348. award: 0.25 points

TB 10S-06 Acceptance sampling is most useful when the cost c...
Acceptance sampling is most useful when the cost consequences of passing defectives are low.

- → True
- False

True / False	*TB 10S-06 Acceptance sampling is most useful when the cost c...*

1349. award: 0.25 points

TB 10S-07 Acceptance sampling procedures can be applied to b...
Acceptance sampling procedures can be applied to both attribute and variables inspection.

- → True
- False

True / False	*TB 10S-07 Acceptance sampling procedures can be applied to b...*

award:
1350. **4.25 points**

TB 10S-08 Acceptance sampling plans must specify the lot siz...
Acceptance sampling plans must specify the lot size, the sample size, and the acceptance/rejection criteria.

→ ○ True
○ False

True / False	*TB 10S-08 Acceptance sampling plans must specify the lot siz...*

award:
1351. **4.25 points**

TB 10S-09 In a single-sampling plan, the entire lot, or batc...
In a single-sampling plan, the entire lot, or batch of items, is accepted or rejected based upon only one specified sized sample.

→ ○ True
○ False

True / False	*TB 10S-09 In a single-sampling plan, the entire lot, or batc...*

award:
1352. **4.25 points**

TB 10S-10 A double-sampling plan requires a second sample.
A double-sampling plan requires a second sample.

○ True
→ ○ False

True / False	*TB 10S-10 A double-sampling plan requires a second sample.*

award:
1353. **4.25 points**

TB 10S-11 In a double-sampling plan, a second sample may not...
In a double-sampling plan, a second sample may not be taken if the results of the first sample are conclusive.

→ ○ True
○ False

True / False	*TB 10S-11 In a double-sampling plan, a second sample may not...*

award:
1354. **4.25 points**

TB 10S-12 Acceptance sampling is a form of inspection applie...
Acceptance sampling is a form of inspection applied to items that are part of an ongoing process.

○ True
→ ○ False

True / False	*TB 10S-12 Acceptance sampling is a form of inspection applie...*

award: 1355. **4.25 points**

TB 10S-13 In a double-sampling plan, a second sample is take...
In a double-sampling plan, a second sample is taken if the results of the first sample are inconclusive.

→ ○ True
○ False

True / False	*TB 10S-13 In a double-sampling plan, a second sample is take...*

award: 1356. **4.25 points**

TB 10S-14 The ability of an acceptance sampling plan to disc...
The ability of an acceptance sampling plan to discriminate between good and bad lots is described by its operating characteristic curve.

→ ○ True
○ False

True / False	*TB 10S-14 The ability of an acceptance sampling plan to disc...*

award: 1357. **4.25 points**

TB 10S-15 The steeper an OC curve is, the less it tends to d...
The steeper an OC curve is, the less it tends to discriminate between good and bad lots.

○ True
→ ○ False

True / False	*TB 10S-15 The steeper an OC curve is, the less it tends to d...*

award: 1358. **4.25 points**

TB 10S-16 The cost and time required for inspection dictate ...
The cost and time required for inspection dictate the type of sampling plan used.

→ ○ True
○ False

True / False	*TB 10S-16 The cost and time required for inspection dictate ...*

award: 1359. **4.25 points**

TB 10S-17 The LTPD is associated with a consumer's risk.
The LTPD is associated with a consumer's risk.

→ ○ True
○ False

True / False	*TB 10S-17 The LTPD is associated with a consumer's risk.*

award:
1360. **4.25 points**

TB 10S-18 The AQL is associated with a producer's risk.
The AQL is associated with a producer's risk.

→ ○ True
○ False

True / False	*TB 10S-18 The AQL is associated with a producer's risk.*

award:
1361. **4.25 points**

TB 10S-19 The terms consumer's risk and alpha risk both ...
The terms "consumer's risk" and "alpha risk" both refer to a Type I error.

○ True
→ ○ False

True / False	*TB 10S-19 The terms consumer's risk and alpha risk both ...*

award:
1362. **4.25 points**

TB 10S-20 The average outgoing quality (AOQ) assumes that lo...
The average outgoing quality (AOQ) assumes that lots contain some given proportion defective.

→ ○ True
○ False

True / False	*TB 10S-20 The average outgoing quality (AOQ) assumes that lo...*

award:
1363. **4.25 points**

TB 10S-21 Average outgoing quality will show the average q...
"Average outgoing quality" will show the average quality level of inspected and uninspected lots for any given incoming proportion defective.

→ ○ True
○ False

True / False	*TB 10S-21 Average outgoing quality will show the average q...*

award:
1364. **4.25 points**

TB 10S-22 The purpose of acceptance sampling is to:
The purpose of acceptance sampling is to:

○ estimate process quality
○ estimate lot quality
○ detect and eliminate defectives
→ ○ decide if a lot meets predetermined standards
○ accept samples of products

Multiple Choice	*TB 10S-22 The purpose of acceptance sampling is to:*

1365. award: 0.25 points

TB 10S-23 Acceptance sampling plans might call for selection...
Acceptance sampling plans might call for selection of:

- a single sample
- two samples
- several samples
- → all of the choices
- none of the choices

Multiple Choice	*TB 10S-23 Acceptance sampling plans might call for selection...*

1366. award: 0.25 points

TB 10S-24 Which one of the following would not be a reason f...
Which one of the following would not be a reason for using acceptance sampling?

- → high cost of passing defectives
- large number of items
- destructive testing
- boredom and fatigue that would accompany complete inspection
- All of the choices are reasons.

Multiple Choice	*TB 10S-24 Which one of the following would not be a reason f...*

1367. award: 0.25 points

TB 10S-25 Sampling plans typically specify:
Sampling plans typically specify:

- lot size
- sample size
- number of samples to be taken
- acceptance/rejection criteria
- → B, C and D

Multiple Choice	*TB 10S-25 Sampling plans typically specify:*

1368. award: 0.25 points

TB 10S-26 A lot can be accepted or rejected in a double-...
A lot can be "accepted" or "rejected" in a double-sampling plan:

I) after one sample is taken
II) after two samples are taken
III) after one sample is checked twice

- I only
- II only
- III only
- → I or II
- I or III

Multiple Choice	*TB 10S-26 A lot can be accepted or rejected in a double-...*

1369. award: **1.25 points**

TB 10S-27 A lot can be accepted or rejected in a multipl...
A lot can be "accepted" or "rejected" in a multiple-sampling plan:

I) after one sample is checked multiple times
II) after two samples are taken
III) after one or more samples are taken

- I only
- II only
- → III only
- I or II
- I or III

Multiple Choice *TB 10S-27 A lot can be accepted or rejected in a multipl...*

1370. award: **1.25 points**

TB 10S-28 An OC curve shows:
An OC curve shows:

- average outgoing quality
- the average outgoing quality limit
- out of control criteria
- operating control
- → probability of acceptance versus lot quality

Multiple Choice *TB 10S-28 An OC curve shows:*

1371. award: **1.25 points**

TB 10S-29 The ability of a sampling plan to discriminate bet...
The ability of a sampling plan to discriminate between lots of high quality and lots of low quality is described by:

- a Gantt chart
- → an operating characteristic curve
- an average outgoing quality curve
- a process control chart
- a range chart

Multiple Choice *TB 10S-29 The ability of a sampling plan to discriminate bet...*

1372. award: **1.25 points**

TB 10S-30 The AQL indicates:
The AQL indicates:

- → acceptable quality level
- average quality level
- actual quality level
- aggregate quality level
- approximate quality level

Multiple Choice *TB 10S-30 The AQL indicates:*

award:
1373. **4.25 points**

TB 10S-31 A Type II (beta) error occurs when:
A Type II (beta) error occurs when:

→ A bad lot is accepted.
A good lot is rejected.
A bad lot is rejected.
A good lot is accepted.
none of the choices

Multiple Choice	*TB 10S-31 A Type II (beta) error occurs when:*

award:
1374. **4.25 points**

TB 10S-32 A Type I (alpha) error occurs when:
A Type I (alpha) error occurs when:

A bad lot is accepted.
→ A good lot is rejected.
A bad lot is rejected.
A good lot is accepted.
none of the choices

Multiple Choice	*TB 10S-32 A Type I (alpha) error occurs when:*

award:
1375. **4.25 points**

TB 10S-33 The AOQ shows:
The AOQ shows:

the maximum quality
how well a sampling plan can discriminate between good and bad lots
the actual quality level
"good" quality
→ none of the choices

Multiple Choice	*TB 10S-33 The AOQ shows:*

award:
1376. **4.25 points**

TB 10S-34 In acceptance sampling, the level of inspection au...
In acceptance sampling, the level of inspection automatically adjusts to the quality of lots being inspected, assuming that

A single-sampling plan is used.
Double-sampling plans are used.
Multiple-sampling plans are used.
→ "Rejected" lots are subjected to 100 percent inspection.
none of the choices

Multiple Choice	*TB 10S-34 In acceptance sampling, the level of inspection au...*

A Quality Inspector for Alpha-Beta Co. is concerne...
A Quality Inspector for Alpha-Beta Co. is concerned about the quality of the batch of several thousand Gizmos which his company produced this week and is preparing to ship.

Section Break	*A Quality Inspector for Alpha-Beta Co. is concerne...*

1377. award: 0.25 points

TB 10S-35 If, based on his acceptance sample, he decides to ...
If, based on his acceptance sample, he decides to ship this batch without inspection, which type error would be possible?

- none
- producer's error
- Type I error
- → Type II error
- both Type I and Type II error

Multiple Choice	*TB 10S-35 If, based on his acceptance sample, he decides to ...*

1378. award: 0.25 points

TB 10S-36 If the cost of replacing a defective Gizmo once it...
If the cost of replacing a defective Gizmo once it has been shipped is $2.00, while the cost of 100% inspection prior to shipment is $.40 each, at what point is he indifferent between 100% inspection or shipment without inspection?

- 0% defectives
- 2% defectives
- 5% defectives
- → 20% defectives
- 30% defectives

Multiple Choice	*TB 10S-36 If the cost of replacing a defective Gizmo once it...*

1379. award: 0.25 points

TB 10S-37 If he uses an acceptance sampling plan of n = 5 an...
If he uses an acceptance sampling plan of n = 5 and c = 2, what is the probability that, if this batch is 40% defective, it will be rejected and receive 100% inspection prior to shipment?

- 0.1270
- 0.2730
- → 0.3174
- 0.6826
- 0.7270

Multiple Choice	*TB 10S-37 If he uses an acceptance sampling plan of n = 5 an...*

1380. award: 0.25 points

TB 10S-38 If he uses an acceptance sampling plan of n = 5 an...
If he uses an acceptance sampling plan of n = 5 and c = 2, what will be the average outgoing quality (AOQ) for batches with 40% defectives?

- 0.1270
- → 0.2730
- 0.3174
- 0.6826
- 0.7270

Multiple Choice	*TB 10S-38 If he uses an acceptance sampling plan of n = 5 an...*

The Quality Manager for Graphics, Inc. is concerne...
The Quality Manager for Graphics, Inc. is concerned about the quality of the lot of several thousand posters which her company printed this week and is now preparing to ship.

Section Break	*The Quality Manager for Graphics, Inc. is concerne...*

1381. award: **1.25 points**

TB 10S-39 If, based on her acceptance sample, she decides to...
If, based on her acceptance sample, she decides to ship this lot without inspection, which type error would be possible?

- Type I
- → Type II
- both Type I and Type II error
- neither Type I nor Type II error
- cannot be determined exactly

Multiple Choice	*TB 10S-39 If, based on her acceptance sample, she decides to...*

1382. award: **1.25 points**

TB 10S-40 If the cost of replacing a defective poster once i...
If the cost of replacing a defective poster once it has been shipped is $10.00, while the cost of complete 100% inspection prior to shipment is $.50 per poster, at what point is she indifferent between complete inspection or shipment without inspection?

- → 5%
- 10%
- 12%
- 20%
- 25%

Multiple Choice	*TB 10S-40 If the cost of replacing a defective poster once i...*

1383. award: **1.25 points**

TB 10S-41 If she uses an acceptance sampling plan of n = 10 ...
If she uses an acceptance sampling plan of n = 10 and c = 2, what is the probability that, if this lot is 10% defective, it will be accepted for shipment without inspection?

- → 0.9298
- 0.0702
- 0.8189
- 0.2198
- 0.5995

Multiple Choice	*TB 10S-41 If she uses an acceptance sampling plan of n = 10 ...*

1384. award: 4.25 points

TB 10S-42 If she uses an acceptance sampling plan of n = 10 ...

If she uses an acceptance sampling plan of n = 10 and c = 2, what will be the average outgoing quality (AOQ) for lots with 20% defectives?

→ ○ 0.13556
○ 0.20000
○ 0.23630
○ 0.58434
○ 0.32484

Multiple Choice	*TB 10S-42 If she uses an acceptance sampling plan of n = 10 ...*

1385. award: 4.25 points

TB 10S-43 If the indifference point between complete inspect...

If the indifference point between complete inspection or shipment without inspection is 12% defectives, and she decides to sample 15 posters (n = 15), what is the maximum number of sample defectives (c) for which this lot would be accepted for shipment without further inspection?

○ 0 defectives
→ ○ 1 defective
○ 2 defectives
○ 3 defectives
○ 4 defectives

Multiple Choice	*TB 10S-43 If the indifference point between complete inspect...*

The Quality Manager for Widgets, Inc. is concerned...

The Quality Manager for Widgets, Inc. is concerned about the quality of the lot of several thousand widgets which his company produced this week and is now ready to ship.

Section Break	*The Quality Manager for Widgets, Inc. is concerned...*

1386. award: 4.25 points

TB 10S-44 If the cost of replacing a defective widget once i...

If the cost of replacing a defective widget once it has been shipped is $5.00, while the cost of complete (100%) inspection prior to shipment is 30 cents per widget, what is the point of indifference between complete inspection and shipment without inspection?

○ 1.67% defectives
○ 3% defectives
○ 5% defectives
→ ○ 6% defectives
○ 16.7% defectives

Multiple Choice	*TB 10S-44 If the cost of replacing a defective widget once i...*

award:
1387. 0.25 points

TB 10S-45 If he uses an acceptance sampling plan of n = 8 an...
If he uses an acceptance sampling plan of n = 8 and c = 1, what is the probability that, if this lot is 10% defective, it will be accepted for shipment without inspection?

- .9619
- .9428
- → .8131
- .4305
- .1869

Multiple Choice	*TB 10S-45 If he uses an acceptance sampling plan of n = 8 an...*

award:
1388. 0.25 points

TB 10S-46 If he uses an acceptance sampling plan of n = 8 an...
If he uses an acceptance sampling plan of n = 8 and c = 1, what is the probability that, if this lot is 15% defective, it will be rejected and completely inspected prior to shipment?

- .8948
- .8131
- .6572
- .5033
- → .3428

Multiple Choice	*TB 10S-46 If he uses an acceptance sampling plan of n = 8 an...*

award:
1389. 0.25 points

TB 10S-47 If he uses an acceptance sampling plan of n = 8 an...
If he uses an acceptance sampling plan of n = 8 and c = 1, what will be the average outgoing quality (AOQ) for lots with 10% defectives?

- → .0813
- .0962
- .1869
- .7318
- .8131

Multiple Choice	*TB 10S-47 If he uses an acceptance sampling plan of n = 8 an...*

The Quality Manager for Microelectronics, Inc. is ...
The Quality Manager for Microelectronics, Inc. is concerned about the quality of the batch of several thousand IC's (integrated circuits) which his company is about to ship.

Section Break	*The Quality Manager for Microelectronics, Inc. is ...*

award:
1390. 0.25 points

TB 10S-48 If, based on his acceptance sample, he decides to ...
If, based on his acceptance sample, he decides to ship this batch without inspection, which type error would be possible?

- none
- producer's error
- Type I error
- → Type II error
- both Type I and Type II error

Multiple Choice	*TB 10S-48 If, based on his acceptance sample, he decides to ...*

1391. award: 4.25 points

TB 10S-49 If the cost of replacing a defective IC once it ha...

If the cost of replacing a defective IC once it has been shipped is $5.00, while the cost of complete (100%) inspection prior to shipment is $.20 each, at what point is he indifferent between complete inspection or shipment without inspection?

- 0% defectives
- → 4% defectives
- 5% defectives
- 9% defectives
- 22% defectives

Multiple Choice	*TB 10S-49 If the cost of replacing a defective IC once it ha...*

1392. award: 4.25 points

TB 10S-50 If he uses an acceptance sampling plan of n = 20 a...

If he uses an acceptance sampling plan of n = 20 and c = 1, what is the probability that, if this batch is 15% defectives, it will be rejected and completely inspected prior to shipment?

- 0.0263
- 0.1237
- 0.1756
- → 0.8244
- 0.9737

Multiple Choice	*TB 10S-50 If he uses an acceptance sampling plan of n = 20 a...*

1393. award: 4.25 points

TB 10S-51 If the indifference point between complete inspect...

If the indifference point between complete inspection and shipment without inspection is 9% defectives, and he decides to sample 40 IC's (n = 40), what is the maximum number of sample defectives (c) for which this batch would be accepted for shipment without inspection?

- 0 defectives
- 1 defective
- → 2 defectives
- 3 defectives
- 4 defectives

Multiple Choice	*TB 10S-51 If the indifference point between complete inspect...*

1394. award: 4.25 points

TB 10S-52 If he uses an acceptance sampling plan of n = 20 a...

If he uses an acceptance sampling plan of n = 20 and c = 1, what will be the average outgoing quality (AOQ) for batches with 15% defectives?

- → 0.0263
- 0.1237
- 0.1756
- 0.8244
- 0.9737

Multiple Choice	*TB 10S-52 If he uses an acceptance sampling plan of n = 20 a...*

1395. award: **5.25 points**

TB 10S-53 Shipments of bowling balls are sampled before deli...

Shipments of bowling balls are sampled before delivery to a warehouse. Lots of 600 balls are checked, using 10 observations from each lot. Any lot with more than one defective is rejected. Calculate values for the operating characteristic curve for this sampling plan.

n = 10 (Use binomial table)
c = 1

Fraction Defective	Cumulative Probability
.05	.9139
.10	.7361
.15	.5443
.20	.3758
.25	.2440
.30	.1493
.35	.0860
.40	.0464
.45	.0233
-	-
-	-
-	-

Short Answer *TB 10S-53 Shipments of bowling balls are sampled before deli...*

1396. award: 6.25 points

TB 10S-54 A firm that makes plastic wrapping material takes ...

A firm that makes plastic wrapping material takes random samples of 50 items from each lot before it is sent to a customer. Lots contain 2,000 items each. Any lot with more than one defective is subjected to 100 percent inspection, and any defectives are replaced with good ones.

(i) Construct the OC curve for this plan.
(ii) Construct the AOQ curve for this plan. What is the approximate AOQ limit?

n = 50 (Use Poisson table)
c = 1

p	np	Cumulative Probability	AOQ	
.002	.10	.995	.00199	
.004	.20	.982	.00393	
.008	.40	.938	.00750	
.012	.60	.878	.010854	
.016	.80	.809	.01294	
.020	1.00	.736	.01472	
.024	1.20	.663	.01591	
.028	1.40	.592	.01658	
.032	1.60	.525	.01680	(approx. AOQ limit)
.036	1.80	.463	.01667	
-	-	-	-	
-	-	-	-	
-	-	-	-	

Short Answer *TB 10S-54 A firm that makes plastic wrapping material takes ...*

1397. award: 6.25 points

TB 10S-55 A manufacturer purchases large quantities of metal...

A manufacturer purchases large quantities of metal brackets from several suppliers. The brackets are shipped in lots of 8,000 each. Random samples of 40 brackets are taken from each lot, and the lot is rejected if any defectives are discovered. Rejected lots are subjected to 100 percent inspection, and any defectives are replaced with good brackets. Determine the average outgoing quality limit for this sampling plan.

n = 40
c = 0

p	np	Cumulative Probability	AOQ	
.005	.2	.819	.0041	
.010	.4	.670	.0067	
.020	.8	.449	.0090	
.030	1.0	.368	.0092	(approx. AOQ limit)
	1.2	3.01	.0090	

Short Answer *TB 10S-55 A manufacturer purchases large quantities of metal...*

Given the following acceptance sampling data for a...
Given the following acceptance sampling data for a lot of several thousand units of a finished good:

Per-unit cost of replacing a reject once it has been shipped	$5.00
Per-unit cost of 100 percent inspection prior to shipment:	$ .60
Specified sample size	20 units

Section Break	*Given the following acceptance sampling data for a...*

award:
1398. **0.25 points**

TB 10S-56 If this lot were 5% defective, what type error wou...
If this lot were 5% defective, what type error would be possible? For an acceptance sampling plan with c = 2, what would be the risk of this error?

Type I error; alpha = .0755

Short Answer	*TB 10S-56 If this lot were 5% defective, what type error wou...*

award:
1399. **0.25 points**

TB 10S-57 If this lot were 20% defective, what type error wo...
If this lot were 20% defective, what type error would be possible? For an acceptance sampling plan with c = 2, what would be the risk of this error?

Type II error; beta = .2061

Short Answer	*TB 10S-57 If this lot were 20% defective, what type error wo...*

award:
1400. **0.25 points**

TB 10S-58 What is the point of indifference between 100 perc...
What is the point of indifference between 100 percent inspection or shipment without inspection?

12% defectives

Short Answer	*TB 10S-58 What is the point of indifference between 100 perc...*

1401. award: 1.25 points

TB 10S-59 If c = 2, what is the probability that, if this lo...

If c = 2, what is the probability that, if this lot were 5% defective, it would be accepted for shipment without inspection? 10% defective? 15%? 20%?

.9245; .6769; .4049; .2061

Short Answer	*TB 10S-59 If c = 2, what is the probability that, if this lo...*

1402. award: 1.25 points

TB 10S-60 If c = 2, what is the probability that, if this lo...

If c = 2, what is the probability that, if this lot were 5% defective, it would be rejected and completely inspected prior to shipment? 10% defective? 15%? 20%?

.0755; .3231; .5951; .7939

Short Answer	*TB 10S-60 If c = 2, what is the probability that, if this lo...*

1403. award: 1.25 points

TB 10S-61 For an acceptance sampling plan with c = 2, what w...

For an acceptance sampling plan with c = 2, what will be the average outgoing quality for lots with 5% defectives? 10%? 15%? 20%?

.0462; .0677; .0607; .0412

Short Answer	*TB 10S-61 For an acceptance sampling plan with c = 2, what w...*