Final Exam

SAMPLE FINAL EXAM

QUESTION 1 (23 MARKS)

Multiple Choice: Choose the best answer (and indicate it in the booklet). Each question carries one mark, unless indicated otherwise.

1. Since residual income (R) is not a percentage, it is not useful for:
   A. Comparing units of significantly different size.
   B. Objective calculations.
   C. Internal reporting.
   D. Smaller firms.
   E. Larger firms.

2. Both the full cost method and the market price method satisfy a key objective of transfer pricing, namely:
   A. Objectivity.
   B. Selectivity.
   C. Usability.
   D. Consistency.
   E. Reliability.

3. All of the following are listed as transfer pricing methods **except**:
   A. Market price.
   B. Variable cost.
   C. Fixed cost.
   D. Full cost.
   E. Negotiated price.

4. A strategic technique to help firms effectively improve the most common and important critical success factor - cycle time, is:
   A. Activity-based costing.
   B. Bench-marking.
   C. The theory of constraints.
   D. Continuous improvement.
   E. Life cycle costing.

5. In the competitive global marketplace common to most industries, which of the following is often a critical success factor:
   A. The ability to design new products.
   B. The ability to increase throughput.
   C. The ability to be faster than your competitors.
   D. The ability to reduce costs and expenses.
   E. The ability to expand productive capacity.

6. Which of the following is **not** one of the steps in the life cycle of a product?
   A. Manufacturing, inspecting, packaging and warehousing.
   B. Research and development.
   C. Purchasing and receiving.
   D. Marketing, promotion, and distribution.
   E. Product design including prototyping, target costing , and testing.

7. Activity-based costing (ABC) differs from other costing approaches in that it more accurately measures the cost of activities:
   A. Not proportional to the volume of outputs produced.
   B. Directly proportional to the volume of outputs produced.
   C. Inversely proportional to the volume of outputs produced.
   D. In every costing situation.
   E. But at a significantly lower cost in time and money.

8. Successful activity-based costing (ABC) implementation depends upon the firm having:
   A. Top management support.
   B. ABC linked to its competitive strategy.
   C. Effective training.
   D. Adequate resources.
   E. All of the above.

9. Which of the following is **not** a unit-level activity?
   A. Direct labor hours.
   B. Direct material dollars.
   C. Machine hours.
   D. Product orders.
   E. Value added.

10. The objectives of management of control of the manager include:
   A. Quantity and quality.
   B. Intensity and breadth.
   C. Consistency.
   D. Motivation, incentive, and fairness.
   E. Identification, response, and performance.

11. The "risk-averse" manager will be improperly biased to:
   A. Seek out decisions with uncertain outcomes.
   B. Make risky decisions.
   C. Avoid decisions with uncertain outcomes.
   D. Maximize his own risk and minimize the company's risk.
   E. Use resources beyond his her control.

12. If all major decisions in a multi-unit retail firm are made at the top management level, the firm would be considered:
    A. Top-heavy.
    B. Centralized.
    C. Arbitrary.
    D. Monolithic.
    E. Dictatorial.

13. Contribution margin of canceled sales orders due to quality deficiency would be classified as:
    A. Prevention costs.
    B. Retention costs.
    C. Appraisal costs.
    D. Internal failure costs.
    E. External failure costs.

14. Raw material inspection costs would be classified as:
    A. Prevention costs.
    B. Retention costs.
    C. Appraisal costs.
    D. Internal failure costs.
    E. External failure costs.

15. Reinspection costs would be classified as:
    A. Prevention costs.
    B. Retention costs.
    C. Appraisal costs.
    D. Internal failure costs.
    E. External failure costs.

16. Sales less direct materials costs, including purchased components and materials handling costs, is known as:
    A. Bottleneck income.
    B. Constraint.
    C. Output.
    D. Throughput.
    E. Putout.

17. Which one of the following is not one of the five steps in TOC (Theory of Constraints) analysis?
    A. Identify the binding constraint(s).
    B. Determine the most efficient utilization for each binding constraint.
    C. Manage the flow through the binding constraint.
    D. Deduct capacity from the binding constraint.
    E. Redesign the manufacturing process for flexibility and fast throughput.

18. Which one of the following industries has high upstream costs?
    A. Retail.
    B. Perfumes.
    C. Cosmetics.
    D. Computer software.
    E. Toiletries.

19. XYZ Corporation sells three products with the following prices and costs per unit:

Product	Selling price	Variable cost
X	$ 6	$ 4
Y	9	6
Z	24	9

Fixed cost is $108,000. The unit sales mix is ½ for Product X, 1/3 for Product Y, and 1/6 for Product Z. What is the breakeven point in total sales revenue for the XYZ corporation? (Round off all numbers to two decimal points):

A. $284,210.
B. $210,000.
C. $240,000.
D. $255,555.
E. None of these.

(5 marks)

QUESTION 2 (21 MARKS)

Thornton Corporation is a manufacturing company that produces a single product known as Jupiter. Thornton uses the first-in-first-out process costing method for both financial statement and internal management accounting.

In analyzing production results, standard costs are used, whereas actual costs are used for

financial statement reporting. The standards, which are based upon equivalent units of production, are as follows:

Direct material per unit	1 pound at $10 per pound
Direct labor per unit	2 hours at $4 per hour
Factory overhead per unit	2 hours at $1.25 per hour

The sum of standard cost of variable overhead allowed for March production and budgeted fixed overhead is $30,000. Data for the month of March 2000 are presented below:

The beginning inventory, work-in-process: 2,500 units, 100% complete as to direct materials and 40% complete as to direct labor and factory overhead

An additional 10,000 units were started during the month.

The ending inventory, work-in-process: 2,000 units, 100% complete as to direct material and 40% complete as to direct labor and factory overhead.

Costs applicable to March production are as follows:

	Actual cost	**Standard cost allowed for March production**
Direct material used (11,000 pounds)	$121,000	$100,000
Direct labor (25,000 hours actually worked)	105,575	82,400
Factory overhead	31,930	25,750

Required:

A. For each cost element of production for March (direct material, direct labor, and factory overhead) compute equivalent units of production for the month of March. **(9 marks)**

B. Compute the following variances indicating as either favorable (F) or unfavorable (UF):

1. Direct materials price
2. Direct materials efficiency
3. Direct labor price
4. Direct labor efficiency
5. Factory overhead production volume
6. Factory overhead under- or over-applied **(12 marks)**

Note: Parts 1 to 4 carry 1.5 marks each; parts 5 and 6 carry 3 marks each.

QUESTION 3 (24 MARKS)

Section A

The president of Supreme Motors, Inc., is upset. The year's budget projected that the firm would earn $2,499,900. The recently audited financial statements show an actual loss of $2,440,000. The president wants to know what happened.

As a long-time employee of Supreme Motors, you are aware that the firm manufactures taxicabs to order (the firm does not carry a finished goods inventory). Late last year the firm occupied its new facilities, which were designed to have the capacity to produce 100,000 taxis per year. This is larger than is currently necessary, but management thought it would be cheaper to build the excess capacity then, rather than have to add facilities later.

The master budget for this year called for the production of 65,000 taxis at a cost of $227.5 million. This assumes materials costs of $1,800 per unit, labor of $900 per unit, variable overhead of $200 per unit, and $600 for fixed costs per unit comprising $9 million for advertising, $11 million for administration, and $19 million for depreciation, etc., on its facilities.

Revenues for the year were expected to be $229,999,900 or about $3,538.46 per taxi.

During the year, orders were received to produce 68,000 taxis, but trouble with the new facilities limited production and delivery of taxicabs to 63,000 units. The industry forecast of taxicab sales for the year under review was 812,500 units; actual industry sales, however, were 900,000 units.

A summarized actual income statement for the year shows the following:

Revenues (a)	$221,760,000
Materials (b)	112,000,000
Labor (c)	60,000,000
Variable overhead (d)	13,000,000
Advertising	9,000,000
Administration	10,200,000
Capacity costs	20,000,000
Net income (Loss)	($ 2,440,000)

(a): Competition forced a price cut.
(b): The direct materials price variance was $2 million favorable.
(c): The direct labor usage variance was $3 million unfavorable.
(d): The variable overhead efficiency (usage) variance was $50,000 unfavorable.

Required:
Carefully reconcile the difference between budgeted and actual income by calculating as many **meaningful** variances as possible.

(18 marks)

Section B

ABC Corporation employs a standard cost system for product costing. The standard cost for its product is:

Raw materials	$14.50
Direct labor (2 direct labor hours x $8)	16.00
Manufacturing overhead (2 direct labor hours x $11)	22.00
Total standard cost	$52.50

The manufacturing over head rate is based on a normal annual activity level of 600,000 direct labor-hours. ABC planned to produce 25,000 units each month during the year. The budgeted annual fixed manufacturing overhead is $3,000,000.The budgeted fixed overhead is assumed to be incurred uniformly over the year. During March, ABC produced 26,000 units, and used 53,500 direct labor hours at a cost of $433,350. Actual manufacturing overhead for the month was $575,000.

Required:
Determine the following manufacturing overhead variances:

1. Spending variance
2. Efficiency variance
3. Production volume variance

(6 marks)

QUESTION 4 (10 MARKS)

XYZ, Inc. is evaluating two alternative embossing machines for acquisition. The machine selected will be used to manufacture a single product for sale during the coming summer. At the end of the summer the machine will be scrapped. The first machine costs $12,000 and will make the product at a variable cost of $15 per unit. The second machine costs $48,000 but manufactures the product for $9 per unit. The product sells for $18 per unit.

Management's best guess is that 6,500 units will be sold during the summer. However, potential

demand is thought to be equally likely over the range of 3,000 to 7,000 units. A marketing firm has offered to do a survey at a cost of $3,500. They promise that the survey will be able to predict demand exactly.

Required:
Should the firm hire the marketing firm to do the survey? Show all computations supporting your answer clearly.

QUESTION 5 (12 MARKS)

LPG produces liquid hydrogen and oxygen using hydrolysis. The firm's production operations are segmented into three departments: hydrolysis, hydrogen liquefaction and oxygen liquefaction. The hydrolysis department splits plain tap water into hydrogen gas, oxygen gas, and a residue. This department processes 1,000 pounds of water at a time. The 1,000 pounds of water yields 4,000 cubic feet of hydrogen, 2,000 cubic feet of oxygen, and three pounds of residue. When the hydrogen is converted to liquid form, it sells for the equivalent of $0.30 per cubic foot. The oxygen, when liquefied, sells for the equivalent for the equivalent of $0.40 per cubic foot, and the residue sells "as is" for $2 per pound.

It costs approximately $80 to convert 1,000 cubic feet of hydrogen to liquid form, and it costs $120 to convert 1,000 cubic feet of oxygen to liquid form. The purchases 1,000 pounds of water for $5 and it costs $85 per batch to split the water into hydrogen, oxygen, and residue. The residue is treated as a byproduct with any proceeds recognized as miscellaneous income at the time of sale. Joint costs are allocated using the net realizable value method.

Required:
Determine the value of finished goods inventory, if the firm has the equivalent of 3,000 cubic feet of hydrogen, 5,000 cubic feet of oxygen, and 20 pounds of the residue on hand.

QUESTION 6(10 MARKS)

U-Blew-It Corporation produces a chemical for soap manufactures which enables soaps to lather profusely. Based on the data for the past 24 months, which it considered representative of the

current economic environment, the company developed the following cost function:

Total cost = 0.72 Sales + $22,400

It had a coefficient of determination of 0.47 and a standard error of the estimate of $780.

Required:

1. The monthly sales were estimated to be $115,000. What would be the 95% confidence interval on the monthly income? **(3 marks)**
2. In (1) above, how confident can the firm be of earning more than $7,800? **(4 marks)**
3. Determine the level of sales required for the firm to be 95% confident of earning at least $6,000. **(3 marks)**