Management Accounting Sample Final Exam

(Solutions are at the end of the exam)

Question 1 (40 marks)

There are 25 multiple choice questions.

1. A measure of activity that is believed to have a direct cause effect relationship to a cost is known as a:
   a. predictor
   b. cost driver
   c. relevant range
   d. cost object

2. Variable selling expenses are treated as a product cost by:
   a. absorption costing only
   b. variable costing only
   c. variable costing and absorption costing
   d. neither variable costing nor absorption costing

3. Utley Company sold all of the units that it produced during the period plus 10,000 units from the beginning inventory. Which method will give a larger net income?
   a. absorption costing
   b. variable costing
   c. net income is the same under either method
   d. not enough information is given to make a determination

4. The formula for degrees of operating leverage is equal to contribution margin divided by
   a. sales
   b. fixed costs
   c. profit before taxes
   d. profit after taxes

5. Fixed costs are $70,000 and the contribution margin ratio is 40 percent. What amount of sales revenue must be realized to break even?
   a. $28,000
   b. $98,000
   c. $116,667
   d. $175,000

6. One difficulty in using residual income as a performance measure is that it:
   a. is designed to measure performance only over the long run
   b. is a percentage rather than a dollar figure
   c. is inherently biased in favor of larger divisions
   d. measures cash flows rather than income

7. Last year the Southwest Division of Consolidated Industries, Inc. had sales of $905,000, variable production costs of $502,000, variable selling costs of $90,500, avoidable fixed expenses of $113,000, and allocated corporate fixed expenses of $140,000. What was the controllable margin for Southwest Division?
   a. $59,500
   b. $199,500
   c. $312,500
   d. $403,000

8. Karvel Corporation uses machine hours as the basis for allocating manufacturing overhead costs to production. For the month of August, Karvel estimated total manufacturing overhead costs at $300,000 and total machine hours at 75,000 hours. Actual results for the period were total manufacturing overhead costs of $290,000 and total machine hours of 75,000 hours. As a result of this outcome, Karvel would have
   a. applied more overhead to Work in Process than the actual amount of overhead cost for the year
   b. applied less overhead to Work in Process than the actual amount of overhead cost for the year
   c. applied an amount of overhead to Work in Process that was equal to the actual amount of overhead
   d. found it necessary to recalculate the predetermined overhead rate

9. Assume that a company is presently operating at a profit. If sales volume increases and all other factors remain constant, then the:
   a. contribution margin ratio will increase
   b. break-even point will decrease
   c. margin of safety will increase
   d. net income will decrease

10. The contribution margin ratio is 30% for the Honeyville Company and the break-even point in sales is $150,000. If the company desires a target operating income of $60,000, sales would have to be:
   a. $200,000
   b. $350,000
   c. $250,000
   d. $210,000

Use the following information to answer questions 11 – 12:

The Anthony Company is interested in preparing a Master Flexible Budget for January. The following budgeted data are available for the month:

Sales in units	9,000
Sales in dollars	$450,000
Direct materials	90,000
Direct labour	135,000
Variable Manufacturing Overhead	72,000
Variable Selling and Administrative	18,000
Fixed Manufacturing Overhead	45,000
Fixed Selling and Administrative	27,000

11. If 8,400 units, rather than 9,000 units are sold during a month, then the expected operating income for the month would be:
    a. $54,000
    b. $59,500
    c. $57,000
    d. $35,500

12. If 10,000 units, rather than 9,000 units are sold during a month, the budgeted amount of total fixed cost for the month would be :
    a. $80,000
    b. $110,000
    c. $72,000
    d. $99,000

13. Which of the following is evaluated in terms of the rate of return in addition to the contribution income statement?
    a. cost centre
    b. profit centre
    c. investment centre
    d. revenue centre

14. Allargando Company recorded for the past year sales of $500,000 and average operating assets of $250,000. What is the profit margin that Allargando Company needed to earn in order to achieve an ROI of 12%?
    a. 6.00%
    b. 12.00%
    c. 2.00%
    d. 8.33%

15. Some investment projects require that a company expand its working capital to service the greater volume of business that will be generated. Under the net present value method, the investment of working capital should be treated as:
    a. an initial cash outflow for which no discounting is necessary
    b. a future cash inflow for which discounting is necessary
    c. both an initial cash outflow for which no discounting is necessary and a future cash inflow for which discounting is necessary
    d. irrelevant to the net present value analysis

The following information is for questions 16 and 17:

The Hum Division of the Ho Company reported the following data for last year:

Sales	$800,000	Stockholders' equity	$200,000
Operating expense	$650,000	Average operating assets	$600,000
Interest expense	$50,000	Minimum required rate of return	12%
Taxes expense	$30,000		

16. The residual income for the Hum Division last year was
    a. $126,000
    b. $46,000
    c. $78,000
    d. $22,000
    e. none of these
17. The return on investment last year for the Hum Division was
    a. 75%
    b. 25%
    c. 35%
    d. 12%
    e. none of these

The following information is for question 18 and 19.

A company has two divisions - The Hogan Division and the Jasper Division. The Hogan Division makes and sells K7 motors which can either be sold to outside customers or to the Jasper Division. Next month the following results are expected to occur at Hogan:

Selling price per K7 motor to outside customers	$115
Unit variable production cost	$75
Monthly capacity of K7 motors	3,500 units
Sales of K7 motors to outside customers	2,100 units

Jasper would like to buy 1,200 of these motors from Hogan next month. Hogan can purchase these motors from an outside supplier at $110 each.

18. If Hogan sells 1,200 of the motors to Jasper next month at a price of $110 per motor, the monthly effect on profits of the company as a whole will be
    a. $42,000 decrease
    b. $42,000 increase
    c. $48,000 increase
    d. $48,000 decrease
    e. none of these

19. Suppose sales of K7 motors to outside customers is expected to be 2,840 units next month while all other conditions remain the same. If Hogan sells 1,200 motors to Jasper next month at a price of $110 per motor, the monthly effect on profits of the company as a whole will be
    a. $42,000 decrease
    b. $42,000 increase
    c. $21,600 decrease
    d. $20,400 increase
    e. none of these

20. Division X makes and sells a single product. Presently it sells 12,000 units per year to outside customers at $24 per unit. The annual capacity is 20,000 units and the variable cost to make each unit is $16. All selling expenses are fixed. Division Y would like to buy 10,000 units a year from Division X. The minimum transfer price that Division X would be willing to accept is:
    a. $24.00
    b. $21.40
    c. $17.60
    d. $16.00
    e. none of these

21. Last year a company had sales of $400,000, an asset turnover of 2.4, and a return on investment of 36%. The company's net operating income for the year was
    a. $144,000
    b. $120,000
    c. $80,000
    d. $60,000
    e. none of these

The following information is for question 22 – 25:

The Holmes Division recorded operating data as follows for the past year:

Sales	$200,000
Net operating income	$25,000
Average operating assets	$100,000
Gross profit	$75,000
Stockholders' equity	$80,000
Residual income	$13,000

22. For the past year, the return on investment was
    a. 15.75%
    b. 20.50%
    c. 25.00%
    d. 31.25%
    e. none of these

23. For the past year, the profit margin was
    a. 12.50%
    b. 13.00%
    c. 14.75%
    d. 15.00%
    e. none of these

24. For the past year, the asset turnover was
    a. 25
    b. 10
    c. 4
    d. 2
    e. none of these

25. For the past year, the minimum required rate of return was
    a. 11%
    b. 12%
    c. 13%
    d. 14%
    e. none of these

Question 2 (18 marks)

For each of the following independent cases, supply the missing amounts and enter your answers on the attached answer sheet.

	Case 1	**Case 2**	**Case 3**
Units produced	300	(d)	640
Standard hours per unit	2	.6	(g)
Standard hours allowed	(a)	1,200	960
Standard rate per hour	$5	(e)	$3.50
Actual hours worked	615	1,160	(h)
Actual labour cost	(b)	(f)	$3,230
Labour rate variance	$62 U	$80 U	$95 F
Labour efficiency variance	(c)	$120 F	(I)

Question 3 (13 marks)

Livingston, Inc.'s September 30, 1998 balance sheet follows:

Assets		**Liabilities & Stockholders' Equity**	
Cash	$20,000	Accounts payable	$136,000
Accounts receivable	72,200		
Inventory	54,000		
Plant assets (net of $40,000 accumulated depreciation)	160,000	Common stock	60,000
		Retained earnings	110,200
Total assets	$306,200	total liabilities & stockholders' equity	$306,200

Other information about the company follows:

- The company wants a minimum cash balance of $20,000
- Revenues of $180,000 and $240,000 are expected for October and November, respectively.
- The collection pattern is 60 percent in the month of sale, 38 percent in the next month, and 2 percent uncollectible.
- Cost of goods sold is 75 percent of sales.
- Purchases each month are 60 percent of the current month's sales and 40 percent of the following month's sales. All purchases are paid for in the month following the purchase.
- Other monthly expenses are $24,000, which include $1,000 of depreciation, but does not include bad debt expense.

Required:

a. Forecast the October cash collections.
b. Forecast the October 31 inventory balance.
c. Forecast the October 31 retained earnings balance.

Question 4 (17 marks)

The Mid-City Bakery produces three types of cakes: birthday, wedding, and special occasion. The cakes are made from scratch and baked in a special cake oven. During the holiday season (roughly November 15 - January 15), total demand for the cakes exceeds the capacity of the cake oven. The cake oven is available for baking 690 hours per month, but because of the size of the cakes, it can bake only one cake at a time. Management must determine how to ration the oven time among the three types of cakes. Information on costs, sales prices, and product demand follows:

	Birthday Cakes	**Wedding Cakes**	**Special Occasion Cakes**
Sale price	$25	$100	$40
Variable costs			
Direct materials	5	30	10
Direct labor	5	15	8
Variable overhead	2	5	4
Variable selling	3	12	5
Required oven time per cake	10 min.	80 min.	18 min.
Fixed costs (monthly)			
Factory	$1,200		
Selling & administrative	$800		

Required:

If demand is unlimited for all three types of cakes during the holiday season, which cake or cakes should Mid-City bake during the holiday season? Why?

Question 5 (12 marks) (20 minutes)

Johnson Manufacturing is considering an expansion of their current operations due an increase in demand.

The current machine was purchased 10 years ago at a cost of $1,200,000 and was expected to last 20 years, being amortized on a straight-line basis with no salvage value. The current machine is expected to incur an overhaul in 6 more years at a cost of $140,000.

The company is considering upgrading to a new machine to accommodate the new expansion. The new machine will cost $1,850,000 and will be amortized over 10 years with a salvage value of $300,000 in 10 years, with straight-line amortization. The expansion will require $150,000 in additional working capital. The new machine will have to incur a major overhaul in 6 years at a cost of $180,000. The expansion will increase sales from the current $2.2 million per year to $2.5 million per year (if the new machine is purchased, if not sales will remain constant). There are no variable costs.

If the new machine is purchased, the old machine could be sold immediately for $150,000. At the end of the 10 years, the new working capital needed will be released back into the company to be used elsewhere. The company uses a discount rate equal to the cost of capital of 9%.

Required:

Determine if the company should purchase the new machine or keep the old machine using the incremental method by determining net present value.

Present Value of a Single Sum

$$PV = \frac{FV}{(1+i)^n}$$

Present Value of an Annuity

$$PV = PMT * \left(\frac{1 - \frac{1}{(1+i)^n}}{i} \right)$$

SOLUTIONS
SAMPLE FINAL EXAMINATION

THE * INDICATES THE CORRECT ANSWER FOR EACH OF THE MULTIPLE CHOICE QUESTIONS

Question 1:

1.	a	b *	c	d	13.	a	b	c *	d	
					14.	a *	b	c	d	
2.	a	b	c	d *	15.	a	b	c *	d	
3.	a	b *	c	d	16.	a	b	c *	d	e
4.	a	b	c *	d	17.	a	b *	c	d	e
5.	a	b	c	d *	18.	a	b *	c	d	e
6.	a	b	c *	d	19.	a	b	c	d *	e
7.	a	b *	c	d	20.	a	b	c *	d	e
8.	a *	b	c	d	21.	a	b	c	d *	e
9.	a	b	c *	d	22.	a	b	c *	d	e
10.	a	b *	c	d	23.	a *	b	c	d	e
11.	a *	b	c	d	24.	a	b	c	d *	e
12.	a	b	c *	d	25.	a	b *	c	d	e

Question 2 **Note that this question is set a higher level as to what you could expect on the final examination. That said, it is a good practice variance analysis question.**

(a) 300 units produced x 2 standard hours per unit = 600 hours

(b) Labour rate variance = AH (AR – SR)
62U = 615 (AR – 5)
AR = 5 + 62 / 615 = 5.10

Actual labour cost = 615 hours x $5.10 = $3,137

(c) SR (AH – SHA)
5 (615 – 600)
= $75U

(d) 1,200 Standard Hours Allowed / 0.6 Standard hours per unit = 2,000 units

(e) Labour Efficiency Variance = SR (AH – SHA)
120F = SR (1,160 – 1,200)
SR = 120 / 40 = $3

(f) Labour Rate Variance = AH (AR – SR)
80U = 1,160 (AR – 3)
AR = 3 + 80/1160 = 3.069

Actual labour cost = 1,160 x $3.069 = 3,560

(g) 960 Standard Hours Allowed / 640 Units Produced = 1.5 hours

(h) Labour Rate Variance = AH (AR – SR)
95F = AH (3,230/AH – SR)
95F = 3,230 – 3.50*AH
AH = (3,230 + 95) / 3.5 = 950 hours (this one is a little tough!)

(i) Labour Efficiency Variance = SR (AH – SHA)
= 3.50 (950 – 960) = 35 F

Question 3:

a. October Cash Collections:

From Sep	$ 72,200
From Oct Revenue (180,000 x.60)	108,000
Total October Collections	$180,200

b. October 31 inventory balance:

Beginning Inventory	$ 54,000
Purchases: .75((.6 x 180,000) + (.4 x 240,000))	153,000
Total Available	$207,000
COGS (.75 x 180,000)	135,000
Ending Inventory	$ 72,000

c. October 31 Retained Earnings Balance:

Beginning Balance	$110,200
Add Net Income	17,400*
Ending Balance	$127,600

*Net Income:

Sales	$180,000
CGS (75% of sales)	135,000
Gross Margin	$ 45,000
Operating Expense (24,000+(.02 x 180,000)	27,600
Net Income	$ 17,400

Question 4:

	Birthday Cakes	**Wedding Cakes**	**Special Cakes**
Sales	$25	$100	$40
Variable Costs:			
Direct Materials	5	30	10
Direct Labour	5	15	8
Variable Overhead	2	5	4
Variable Selling	3	12	5
Contribution Margin	$10	$ 38	$13
Required Oven Time	10 minutes	80 minutes	18 minutes
CM per minute of oven time	$1	$0.475	$0.722

Since the birthday cakes generate the highest contribution margin per minute of oven time, and given the fact that demand for birthday cakes is high enough to consume all of the oven's available time, only birthday cakes should be produced. This use of the oven will maximize company profit.

Question # 5

Using a Financial Calculator -

Initial investment – equipment ($1,850,000 – 150,000)	($1,700,000)
- working capital	(150,000)
Present value if increased sales N = 10, I = 9, PMT = $300,000	1,925,297
Present value of incremental overhaul N = 6, I = 9, FV = 180,000 – 140,000 = 40,000	(23,851)
Present value of residual value N = 10, I = 9, FV = 300,000	126,723
Present value of working capital recovery N = 10, I = 9, FV = 150,000	63,362
Net present value	$241,531

Recommend they purchase the machine because the net present value > 0.

Using a Formulas

Initial investment – equipment ($1,850,000 – 150,000)	($1,700,000)
- working capital	(150,000)
Present value if increased sales $300{,}000 \times [(1 - 1/(1.09)^{10})/.09]$	1,925,297
Present value of incremental overhaul $40{,}000 / (1.09^{6})$	(23,851)
Present value of residual value $100{,}000 / (1.09^{10})$	126,723
Present value of working capital recovery $150{,}000 / (1.09^{10})$	63,362
Net present value	$241,531

Recommend they purchase the machine because the net present value > 0.