Final Exam Managerial Accounting Winter 2009
SOLUTION ADM2341 All Sections

STUDENT NAME: .....

STUDENT NUMBER: .....

Section	Time	Professor	Check √ your section
M	Mon–Wed: 16:00-17:30,14:30-16:00	Rhonda Pyper	
N	Tues-Thurs: 10:00 - 11:30, 830-10:00	Ronald Eden	
P	Mon-Wed: 13:00-14:30,11:30-13:00	Ronald Eden	
Q	Tues: 13:00-14:30, 11:30-13:00	Sheldon Weatherstone	
R	Wed: 19:00 - 22:00	Marc Tassé	

Instructions:

1. Answer all questions in this booklet. Booklet is **not** to be removed from the examination room. You may separate the pages but ensure that you put them back together and staple before handing in.
2. Please limit your answer to the space provided. Please indicate if you use the back of a page.
3. The use of standard abbreviations (O/H for Overhead and CM% for Contribution Margin Percentage) is quite acceptable.
4. Budget your time wisely. Please do not ask the invigilators questions. Make reasonable assumptions where necessary.
5. Language dictionaries are allowed.

	Question	Max Grades
Short Answer	**Qs 1 to 6**	**38**
Exercises and Problems	**Q.7**	**10**
	Q.8	**10**
	Q.9	**20**
	Q.10	**12**
	Q.11	**10**
	Total	**100**

Budget about 1.8 minutes per grade.

Statement of Academic Integrity
The Telfer School of Management does not condone academic fraud, an act by a student that may result in a false academic evaluation of that student or of another student. Without limiting the generality of this definition, academic fraud occurs when a student commits any of the following offences: plagiarism or cheating of any kind, use of books, notes, mathematical tables, dictionaries or other study aid unless an explicit written note to the contrary appears on the exam, to have in his/her possession cameras, radios (radios with head sets), tape recorders, pagers, cell phones, or any other communication device which has not been previously authorized in writing.

Statement to be signed by the student:
I have read the text on academic integrity and I pledge not to have committed or attempted to commit academic fraud in this examination.

Signed: _____

Note: an examination without this signed statement will not be graded and will receive an exam grade of zero.

Number in brackets ( ) is the grade or the question
All grading will use the calculations carried forward ie the student is not penalized twice for an error

Short Questions

Q.1 (6)

The Ring Around the Collar Company makes shirts. Indicate whether each of the following items is a direct **(D)** or indirect **(I)**, cost with respect to shirts, and whether it is a product **(Pr)** or a period **(Pe)** cost. Check √ the appropriate letter. Indicate, very briefly, the reasons for your choices.

Example*: Hand soap in the shirt factory washrooms.*
D___ or I √__ ; Pr_√_or Pe___ (0 or .5)

Cost can't be traced to shirts. Inventory cost Means contributes to making of the shirts. (0 or .5)*.....

1. Utility costs incurred at company headquarters
D___ or I_√__ ; Pr___ or Pe_√__ *(0 or .5)*
Cost can' t be traced to product. Not an inventory cost. *(0 or .5)*.....

2. Cost of company labels attached to shirts.
D___ or I_√__ ; Pr_√__ or Pe___ *(0 or .5)*

Too costly to trace. Inventory cost. *(0 or .5)* .....

3. Insurance premiums on raw materials warehouses
D___ or I_√__ ; Pr_√__ or Pe___ *(0 or .5)*

Can't be traced to units. Inventory cost.. *(0 or .5)*.....

4. Cost of cotton cloth to make shirts
D_√_ or I___ ; Pr_√__ or Pe___ *(0 or .5)*

Traceable cost. Inventory cost. *(0 or .5)*.....

5. Wages of forklift operators who move material along the production line.
D___ or I__√_ ; Pr_√__ or Pe___ *(0 or .5)*

Cost not traceable to shirts. Inventory cost. *(0 or .5)*.....

6. Rent on the finished goods warehouse.
D___ or I_√__ ; Pr___ or Pe_√__

Not traceable to shirts. Not an inventory cost. .....

Q.2 (4)
Precision Machine Shop had the following inventory balances at the beginning and end of September 2009:

	9/1/2009	9/30/2009
Raw Materials Inventory	$16,000	$18,000
Work in Process Inventory	94,000	72,000
Finished Goods Inventory	36,000	22,000

All raw materials are direct to the production process. The following is also available about manufacturing costs incurred during September:

Costs of raw materials purchased	$ 94,000
Direct labor costs	181,000
Factory overhead	258,000

As the company accountant, you have been asked to:

Required:
Calculate the cost of goods manufactured for September.

	April, 2009	
DM(BB)	$16,000	
+ Purchases	94,000	
-DM(EB)	18,000	
DM Used		(0 or 2) 92,000
+ Direct labor		181,000
+ Manufacturing overhead		258,000
= Manufacturing Costs incurred		531,000
+ Work in process inventory, beginning		94,000
- Work in process inventory, ending		72,000
Cost of goods manufactured	(0 or 2)	553,000

Q.3 (6)
The owner of the Saltydog Catfish Shop wants to estimate a cost function for its supplies expense. The restaurant has been operating for six months and has had the following activity (customer volume) and costs:

MONTH	CUSTOMER VOLUME	SUPPLIES
March	3,400	$6,100
April	3,100	5,850
May	3,400	6,500
June	3,600	6,400
July	3,000	5,500
August	2,800	5,400

a. In a restaurant, give one example of supplies in the variable expense category and one example of supplies in the fixed expense category?
b. Using the high-low method, estimate the cost equation for supplies expense.4
c. What amount of supplies expense would the company expect to incur in a month in which 3,300 customers were served?

a. VC - Salt, pepper, ketchup, mustard etc vary with meals served. (1)
FC- cleaning supplies, for windows floors etc (1)

b. High is June, Low is August
VC = (6400 – 5400)/3600 – 2800) = $1.25 per customer (1)
FC = $6,400 - 3600*$1.25 = $1,900 (1)
TC' = $1,900 + $1.25 per customer

c. TC'(3300) = $1,900 + 3300*$1.25 = $6,025 (0 or 2)

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Q.4 (6)

Minneapolis Metals expects to sell 74,000 units of its product in April 2000. Each unit requires two pounds of Material A at $5.00 per pound. Expected beginning and ending inventories are as follows:

	APRIL1	APRIL 30
Finished goods (units)	4,000	6,300
Material A (pounds)	4,000	4,900

Required

a. How many pounds of material A should Minneapolis Metals plan to purchase in April? What is the expected cost of those purchases?

Production Schedule:		
Sales		74,000
+ EB		6,300
- BB		4,000
= Production		(0 or 2) 76,300
Purchases Schedule		
For Production	76,300 *2 lbs	152,600
+ EB		4,900
- BB		4,000
Purchases in lbs		(0 or 2)153,500
Purchases in $s	153,500 * $5	(0 or 2) $767,500

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Q. 5 (6)

Complete Solutions Inc. manufactures production equipment. Corporate management has examined industry-level data and determined the following industry norms(averages) for producers of material handling systems:

Asset turnover	1.6 times
Profit margin	8%

The actual 2009 results for the company's Material Handling Division are summarized below:

Total assets at year end 2008	$ 9,600,000
Total assets at year end 2009	12,800,000
Sales	13,400,000
Operating expenses	12,500,000

Required:

1. For 2009, how did the Material Handling Division perform relative to industry norms? Discuss briefly.

AOA = ($9,600,000 + 12,800,000)/2 = $11,200,000 (0 or1)

Turnover = $13,400,000/11,200,000 = 1.196 (0 or 1)

Margin = 13,400,000 – 12,500,000 = $900,000 (0 or 1)

Margin % = 900,000/13,400,000 = 6.7% (0 or 1)

Both margin and turnover are well below industry norms – need to investigate cost, price, inventory and asset levels etc (0 or 1).....

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Q. 6 (10)

The Arts & Crafts Emporium makes carved wooden mallard hens and ducklings. Currently the sales mix is 33% hens and 67% ducklings. The following are the company's revenues and costs:

	HENS	DUCKLINGS
Selling price	$12	$6
Variable cost	(4)	(4)
Contribution margin	$ 8	$2

Monthly fixed costs are $12,000. You have just inherited this firm and have decided that you need to focus on the following issues.

Required:

a) If the company wants to earn $8,000 in profit per month, how many hens and how many ducklings must it sell?
b) The company believes that the mix will change to 20% Hens and 80% ducklings next year. How many hens and how many ducklings must it sell to make $8,000 per month next year?
c) Explain briefly the reason for the difference between part a and b.

a) CM Average = .33*$8 + .67*$2= $3.98
Target Sales = ($12,000 + 8,000)/$3.98 = 5025 (0 or 2)
Hens = .33*5025 = 1658
Ducks = .67 *5025 = 3367 (0 or 2)

Or $8x + $2*2x = $20,000
x = Hens = $20,000/$12 = 1667
2x = Ducks = 3333
Slightly different because .33 and .67 is not exactly 1 to 2

b) CM Average = .2*$8 + .8*$2= $3.20
Target Sales = ($12,000 + 8,000)/$3.20 = 6250 (0 or 2)
Hens = .20*6250 = 1250
Ducks .80*6250 = 5000 (0 or 2)

Or $8x + $2*4x = $20,000
x = Hens = $20,000/$16 = 1250
4x = Ducks = 5,000

Same because .20 and .80 is exactly 1 to 4

c) Sales switch to lower CM Ducks(67% to 80%) lowered the average CM, so target sales had to increase to reach $20,000 CM (0 or 2).....

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Problems

Q.7. (10)
O'Gwynn Enterprises is experiencing difficulty in estimating cash collections for the second quarter of 2010, and has asked you, its consultant, for help. Inspection of records and documents reveals the following sales information:

FEBRUARY	MARCH	APRIL	MAY	JUNE
$252,000	$232,000	$248,000	$292,000	$272,000

Analysis of past collection patterns helped management to develop the following information:

- 30 percent of each month's sales are for cash, with no discount.
- Of the credit sales, 50 percent are collected in the month of sale; customers paying during this time are given a 2 percent discount.
- 40 percent of credit sales are collected in the month following the sale.
- 10 percent of credit sales are collected in the second month after the sale. Bad debts are negligible and should be ignored.

Required:
Prepare a schedule of expected cash receipts in **June.**

Cash Collected in June		
From April sales	$248,000 * .70 * .10 (0 or 2)	$17,360
From May sales	292,000 * .70 * .40 (0 or 2)	81,760
From June sales: Cash	272,000 * .30 (0 or 2)	81,600
From June sales: Credit	272,000 * .70 *.50 *.98 (0, 2 or 4) 2 for the discount	93,296
Total		$274,016

Q. 8. (10)

The Office Supplies division of Upscale Artifacts Company produces small plastic cases. Forty percent of its output is sold to the Garden Division of Upscale Artifacts Company. All other output is sold to external parties. All internal transfers occur at a fixed price of $1.25. Office Supplies Division's expected results for 2010 are shown below.

To:	Garden	External
Sales units	60,000	90,000
Sales @$1.25, @1.50	$75,000	$135,000
Costs:		
Variable* @$.40, @.50	(24,000)	(45,000)
Fixed	(36,000)	(54,000)
Gross profit	$ 15,000	$ 36,000

*Office supplies division saves $.10 per unit in selling costs on internal sales.

Office Supplies Division has received an external offer that would enable it to sell, at $1.40 per unit, all the units now scheduled to be sold internally.

Required:

1. What should the minimum transfer price be, considering this offer?
2. How much better or worse off will Office Supplies division be – in total - if transfers continue at $1.25?

1. Min TP = VC(Inside sales) + Lost CM (outside sales)

$.40 + ($1.40 - .50) = $.40 + .90 = $1.30
(2) (3)

Or Min TP = Market price minus saving on internal sales = $1.40 - $.10 = $1.30

2. Worse off by ($1.30 - 1.25) * 60,000 = $.05*60,000 = $3,000 .....
(2) (3)

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Q. 9. (20)

Patio Solutions manufactures picnic table kits that are sold in various large discount department stores. The standard cost card indicates the following costs are incurred to produce a single picnic table kit:

60 feet of pine lumber @ $.90 per foot	$54
2 frame units @ $9 per unit	18
.5 hours of direct labor at $14 per hour	7
Variable factory overhead: .2 hours @ $20 per machine hour	4
Fixed factory overhead at $15 per machine hour*	3
Total	$86

*Based on budgeted annual FOH of $30,000 and expected annual capacity of 2,000 machine hours.

During 2009 the firm had the following actual data related to the production of 11,000 picnic kits:

PURCHASE AND USAGE OF MATERIAL

Lumber	Purchased 700,000 feet at $.85 per foot. Used 690,000 feet
Frame units	Purchased and used 22,250 frame units at $9.10 per unit

DIRECT LABOR USED

5,600 hours at $14.20 per hour

FACTORY OVERHEAD COSTS

Actual machine hours recorded	2,000
Actual variable factory overhead incurred	$38,000
Actual fixed factory overhead incurred	$32,300

Required: Calculate the appropriate variances for material, labor, variable and fixed overhead. Indicate whether the variances are favorable or unfavorable and explain each briefly

	AQ*AP	**Variance**	**AQ*SP**	**Variance**	**SQA*SP**
Lumber	700,000* $.85 $595,000		700,000*$.90 = 630,000	On usage	
		$35,000 (1) F(1) On Purchases	690,000*$.90 = 621,000		11,000*60*$.90 = 660,000*$.90 = 594,000
		AP < SP $.85 < .90		$27,000 (1) U(1) On usage	
				AQ > SQA 690,000 > 660,000	
Frames	22,250* $9.10 $202,475		22,250*$9.00 = 200,250		11,000*2*$9.00 = 22,000*$9.00 = 198,000
		2225 (1) U (1)		2250 (1) U (1)	
		AP > SP, $9.10 >9		AQ > SQA 22,250>22,000	
Labor	5,600* $14.20 $79,520		5,600*$14.00 = 78,400		11,000*.5*$14.00 = 5500*14.00 = 77,000
		1120 (1) U (1) AP > SP 14.20 > 14.00		1400 (1) U (1) AQ > SQA 5600 > 5500	
VOH	$38,000		2,000 *$20 = $40,000		11,000*.2 * $20 = 2200*$20 $44,000
		2000 F Spent less than allowed for 2000 MHs		4,000 F AQ < SQA 2,000< 2200	

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FOH					
	Actual		Budget		Applied
	32,300		30,000 (2,000 *$15)		11,000*.2*$15 2,200*$15 $33,000
		2,300 (1) U (1) Spent more than budget		$3,000 (1) F (1)	Applied more than planned in budget. 2,200 vs 2,000 MHs; 11,000 output vs 10,000 planned output

- 1 per variance up to 4 for lack of explanations, shown in green

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Q.10. (12)
The manufacturing capacity of Poston Company's plant is 70,000 units of product per year. A summary of operations for the year ended December 31, 2009, is as follows:

Sales (36,000 units at $75 per unit)		$2,700,000
Variable manufacturing costs	$1,440,000	
Variable selling costs	180,000	(1,620,000)
Contribution margin		$1,080,000
Fixed costs		(1,000,000)
Operating profit		$ 80,000

A French distributor has offered to buy 32,000 units at $60 per unit during 2010. As company consultant you have been instructed to assume that cost **behavior** will be similar to 2009 during 2010. Management wants you to advise them regarding what would be the total operating profit for 2010 if Poston accepts this offer and also sells as many units to regular customers as it did in 2009? Normal variable selling costs will be incurred on all transactions. There will be a one-time additional $200,000 fixed cost related to shipping on the French order.

Required:
What will be the total operating profit for 2010 if Poston accepts this offer?

VC per unit = $1,620,000/36,000 = $45 per unit (2)

CM per unit (French order) $60 – 45 = $15 (2)

So… CM gain = 32,000*$15 = + $480,000 (2)
FC on order = + 200,000 (2)
Increase in profit +280,000 (2)

Profit next year = $80,000 + 280,000 = $360,000 (2)
Or

Sales in units	Regular 36,000	French 32,000	Total 68,000
Sales @75, @60	$2,700,000	1,920,000	$4,620,000
Variable manufacturing costs @ $40	1,440,000	1,280,000(2)	2,720,000
Variable selling costs @ $5	180,000	160,000(2)	340,000
Contribution margin	1,080,000	480,000(2)	1,560,000
Fixed costs	1,000,000	200,000(2)	1,200,000
Operating profit	$ 80,000	280,000(2)	360,000 (2)

Q.11. (10)
Because of a labor strike in the plant of its major competitor, Johnson Tool Co. has found itself operating at full capacity. The firm makes two electronic woodworking tools: sanders and drills. At this time, monthly demand for the products is as shown below. The firm's machines can be run only 90,000 hours per month. Data on each product follow:

	SANDERS	**DRILLS**
Sales	$45	$28
Variable costs	(30)	(19)
Contribution margin	$ 15	$9
Machine hours required	8	4
Demand in units, per month	10,000	15,000

Fixed costs are $110,000 per month.

Required:

a. How many units of each product should the company make? Explain your answer.
b. How much profit would the company expect to make per month based on your recommendation in Part a.

		Sanders	Drills
CM per MH		$15/8 = $1.875(1)	$9/4 = $2.25 (1)
a. So Drills first			15,000(2) *4 = 60,000Mhs
Then Sanders	90,0000 MHs less 60,000 for Drills leaves 30,000 MHs for Sanders		
So…		30,0000MHs/8 = 3,750 Sanders (2)	
Make the highest CM per machine hour product up to max demand, then the next highest to maximize CM overall. (1)			
b. CM Drills	15,000 * $9 =	$135,000	
CM Sanders	3,750 * $15 =	56,250	
Total CM		$191,250 (2)	
FC		110,000	
Profit		$81,250 (1)	

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