SOLUTION!!!!! ADM 2341 FINAL EXAMINATION

Winter 2007, April 17, 7-10

Section Professor	Check one √
A: Collier	☐
B: Eden	☐
C: Collier	☐
D: Pyper	☐
E: Conheady	☐
F: Pyper	☐
G: Eden	☐

STUDENT NAME: .....

STUDENT NUMBER: .....

Instructions

1. Answer all questions in this booklet. Booklet not to be removed from the examination room. You may separate the sheets but ensure that you put them back together and staple before handing in.

2. Please limit your answer to the space provided. Please note 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**.**

5. **Please do not ask the Professor or invigilator to interpret questions.**

6. Language dictionaries are allowed.

7. There must be no sharing or exchange of calculators

8. **You must sign page 2 of this exam.**

	Questions	Max Grades
Short Answer and Multiple Choice	**Q.1 to Q. 8**	**/27**
Problems	**Q.9**	**/8**
	Q.10	**/10**
	Q.11	**/7**
Longer Questions	**Q.12**	**/16**
	Q.13	**/16**
	Q.14	**/16**
Total		**/100**

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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 for the question

SHORT QUESTIONS AND MULTIPLE CHOICE

Q.1 (2) Erievale Company uses a predetermined overhead rate based on direct labour hours to apply manufacturing overhead to jobs. Last year, Erievale Company incurred $156,600 in actual manufacturing overhead cost. Manufacturing overhead was underapplied by $12,600 for the year.

Required:

If the predetermined overhead rate is $6.00 per direct labour-hour, how many hours did the company work during the year?

Overhead applied is $156,000 − $12,600 = $144,000. **1 point**

If the POR is $6.00/DLH, then number of DL hours worked must be:
$144,000 ÷ $6.00/DLH = ***24,000 DL hours*** **1 point**

2 points .....

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Q.2 (3)

The following data pertain to one month's operations of Whitney, Inc.:

Units in Beginning Inventory	-0-
Units Produced	9,000
Units Sold	6,000
Variable Costs per Unit:	
Manufacturing	$10
Selling and Administrative	$ 6
Fixed Costs in Total:	
Manufacturing	$22,500
Selling and Administrative	$27,000

Required:

Calculate the value the ending finished goods inventory on Whitney's balance sheet using: (i) variable costing; and (ii) absorption costing.

Answer:

(i) ***$30,000*** *(3,000 units x $10/unit) (using variable costing)* **1 point**
(ii) ***$37,500*** *(3,000 units x $12.50/unit) (using absorption costing)* **2 points**

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Q.3 (4)

Yulee Co. produces a product requiring 10 kilograms of material at $1.50 per kilogram. Yulee produced 10,000 units of product during 2006 resulting in a $30,000 unfavourable materials quantity variance.

Required:

Calculate how much direct material was used by Yulee during 2006.

Answer:

Materials quantity variance = SP (AQ – SQ)
$30,000 = $1.50[AQ – (10,000 x 1.5)]
$30,000 = $1.50AQ – 150,000 **2 points**
Actual quantity used =$ 180,000 ÷ $1.50 = ***120,000 kilograms*** **2 points**
4 points

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Q.4. (3) A company has provided the following data:

Sales	3,000 units
Sales Price	$70 per unit
Variable Cost	$50 per unit
Fixed Cost	$25,000

If the dollar contribution margin per unit is increased by 10%, total fixed cost is decreased by 20%, and all other factors remain the same, what will the outcome be for operating income?

a) Increase by $61,000.
b) Increase by $20,000.
c) Increase by $3,500.
d) √ Increase by $11,000. **3 points**

Q.5 (4) The Woody Company manufactures slippers and sells them at $10 a pair. Variable manufacturing costs are $4.50 a pair, and allocated fixed manufacturing costs are $1.50 a pair. It has enough idle capacity available to accept a one-time-only special order of 20,000 pairs of slippers at $6 a pair. Woody will not incur any marketing costs as a result of the special order. What would the effect on operating income be if the special order could be accepted without affecting normal sales?

a) $0;
b) √ $30,000 increase; **4 points**
c) $90,000 increase;
d) $120,000 increase.

Q.6 (2)

Which of the following is defined as the difference between total sales in dollars and total variable expenses?

a) Margin of safety.
b) Operating income.
c) The gross margin.
d) √ The contribution margin.

Q.7 (6) Use the following to answer questions **7.1 and 7.2:**

Division A makes a part with the following characteristics:

Production capacity in units	25,000 units
Selling price to outside customers	$32
Variable cost per unit	$23
Fixed cost per unit	$4
Total fixed costs	$100,000

Division B, another division of the same company, would like to purchase 5,000 units of the part each period from Division A. Division B is now purchasing these parts from an outside supplier at a price of $29 each.

7.1. Suppose that Division A has enough idle capacity to handle all of Division B's needs without any increase in fixed costs and without cutting into sales to outside customers. If Division A refuses to accept the $29 price internally, the company as a whole will be better or worse off and by how much?:

Min TP = VC + lost CM = $23 + 0 = $23 **1 point**

Max TP = $29 **1 point**

So worse off by 5000($29 -$23) = $30,000* if internal sales are refused **1 point** .....

7.2 Suppose that Division A is operating at capacity and can sell all of its output to outside customers at its usual selling price. If Division A sells the parts to Division B at $29 per unit (Division B's outside price), the company as a whole will be be better or worse off and by how much.....

Min TP = VC + lost CM = $23 + ($32 - $23) = $32 **1 point**

Max TP = $29 **1 point**

So worse off by 5000($32 - $29) = $15,000 if sold internally* **1 point**

Q.8 (3) The following is Alsatia Corporation's contribution format income statement for last month:

Sales	$1,400,000
Less: Variable Expenses	$ 900,000
Contribution Margin	$ 500,000
Less: Fixed Expenses	$ 300,000
Operating Income	$ 200,000

The company has no beginning or ending inventories and produced and sold 10,000 units during the month.

Required: What is the company's break-even in units?

Ans: Break-even units:

Selling price ($1,400,000 ÷ 10,000 units)	*$140 per unit*
Variable expenses ($900,000 ÷ 10,000 units)	*$90 per unit*
Contribution margin **1 point**	*$50 per unit*

Breakeven = $300,000/$50 = 6000 units **2 points**

or

Sales = Variable expenses + Fixed expenses + Target operating income
$140 Q = $90Q + $300,000 + $0
$50 Q = $300,000 **1 point**
Q = $300,000 ÷ $50 = 6,000 units **2 points**

PROBLEMS:

Q.9 (8)

The following information is available for Fab Company for 2006:

Purchases of direct materials	$140,000
Total manufacturing costs incurred	550,000
Cost of goods manufactured	600,000
Cost of goods sold	650,000

The inventory values for December 31, 2005, were:

Direct materials inventory	$35,000
Work in process inventory	75,000
Finished goods inventory	175,000

Manufacturing overhead cost for 2006 amounted to 45 percent of the total manufacturing costs incurred and was also 125 percent of the direct labour costs.

REQUIRED:

Calculate the ending inventory value for direct materials for 2006.

Answer:

Jan 1st direct materials inventory	*$35,000*	
Purchases	*140,000*	
DM inventory available for sale	*175,000*	
31/12 DM inventory	*70,500*	**2 points**
*DM used in production ****	*104,500*	

**** Direct materials used in production = $104,500[= $550,000 - $247,500 - $198,000*

*Direct labour ***	*198,000*	**3 points**
*Mfg OH **	*247,500*	**3 points**
Total mfg costs incurred	*550,000*	
Jan 1st WIP	*75,000*	
Mfg costs to account for	*625,000*	*red part not needed*
31/12 WIP ??????	*25,000*	
Cost of goods manufactured	*600,000*	

** Mfg overhead = $247,500 [= 45.00% x $550,000].*
*** $247,500 = 125.00% x direct labour.*
Direct labour = $198,000[= $247,500/125.00%].....

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Q.10 (10)

West Oak Community Church operates a nursery school on its premises from September through May - 9 months in total. Each class is limited to 20 children. The Board has the following report of cash receipts and disbursements for the school for the nine months ended May 31, 2006. The school operates on a cash budget.

Disbursements:		
Teacher's salary	$49,000	
Teacher's assistant ($400 per month), part time	3,600	
Payroll-related costs	1,853	
Supplies	3,240	
Food	2,162	
Equipment repair and replacement	1,456	
Licenses	285	
Miscellaneous	1,226	
Total		62,822

In a letter accompanying the report, the teacher in charge of the school made the following comments about operations for 2007.

a) Costs for food and supplies are likely to increase by 5%.
b) Licensing fees will increase by $50.
c) The need for a teacher's assistant continues.
d) Payroll-related costs should continue at the same percentage of payroll costs.
e) Miscellaneous operating costs are likely to be about the same, but equipment-related costs will probably be about $1,650.

Based on the multitude of positive comments received about the school's teacher, the Board voted to increase the teacher's salary by 15% and to accept the teacher's opinions about costs for 2007.

Required

10.1 Prepare a cash disbursements budget for 2007.

Cash disbursements budget

Payroll:		
Teacher's salary, $49,000 x 1.15	*$56,350*	
Teacher's assistant	*3,600*	
Total payroll	*59,950*	**1 point**
Payroll-related cost, $59,950 x $1,853/($49,000 + 3,600)	*2,112*	**2 point**
Supplies, $3,240 x 105%	*3,402*	**1 point**
Food, $2,162 x 105%	*2,270*	**1 point**
Equipment-related costs	*1,650*	**1 point**
Licenses, $285 + $50	*335*	**1 point**
Miscellaneous	*1,226*	**1 point**
Total	*$70,945*	

10.2 Determine what monthly fee per child the Board must set for 2007 to break even. Assume an average enrollment of 19 children per month.

Revenue required	*$70,945*	
divided by number of months	*9*	**1 point**
Monthly revenue required	*$ 7,883*	
divided by enrollment	*19*	**1 point**
Monthly fee	*$414.88*	

2 points

Q.11 (7) Financial data for Beaker Company for last year appear below:

Beaker Company Assets
(All numbers in dollars)

	Beginning Balance	Ending Balance
Cash	$50,000	$70,000
Accounts Receivable	20,000	25,000
Inventory	30,000	35,000
Plant and Equipment	120,000	110,000
Undeveloped Land	250,000	270,000
Total	470,000	510,000

Beaker Company
Income Statement

Sales	$414,000
Less operating expenses	351,900
Operating Income	$62,100

Required:

11.1 Compute the company's margin, turnover, and return on investment(Average Operating Assets) for last year. **Make and state a reasonable assumption about the undeveloped land.**

The undeveloped land is not an operating asset so subtract it from total assets; orthe undeveloped land is using capital so include it.

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2 points

Average operating assets = ($220,000 + $240,000) ÷ 2
= $230,000

Margin = Net operating income ÷ Sales
= $62,100 ÷ $414,000
= 15%

Turnover = Sales ÷ Average operating assets
= $414,000 ÷ $230,000
= 1.8

ROI = Margin X Turnover
= 15% X 1.8
= 27%

3 points - 1 for each above

13.2 The Board of Directors of Beaker Company has set a minimum required return of 20%. What was the company's residual income last year?

(b.) Net operating income	$62,100
Minimum required return (20% X $230,000)	46,000
Residual income	$16,100

2 points

LONGER QUESTIONS

Q.12 (16) Foster Manufacturing Company uses a standard cost system to help control costs with manufacturing overhead being applied to production on the basis of standard machine hours. For the year 2006, the denominator level of activity has been set at 60,000 machine hours and, according to the flexible budget, the following manufacturing overhead costs should be incurred at that level:

Variable manufacturing overhead	$240,000
Fixed manufacturing overhead	330,000
Total manufacturing overhead	$570,000

During 2006, the following operating results were recorded:

Activity:	
Actual machine hours worked	62,000
Standard machine hours allowed for output	66,000

Costs:	
Actual variable manufacturing overhead cost incurred	$238,700
Actual fixed manufacturing overhead cost incurred	$333,000

At the end of the year on December 31, 2006, the total manufacturing overhead (fixed and variable) applied was $627,000.

Required:

12.1 Show how the $627,000 applied manufacturing overhead figure was calculated

12.2 Calculate the amount of overapplied or underapplied total overhead and analyze this figure in terms of:

(i) the variable overhead spending variance
(ii) the variable overhead efficiency variance
(iii) the fixed overhead budget variance
(iv) the production volume variance

Label all variances as **F**avourable or **U**nfavourable and show supporting calculations.

12.3 Explain clearly, using the information provided, the meaning of each variance you calculated in **12.2** above.

Answer:

Requirement 1: **(3 points)**

The predetermined overhead rates are:

Variable:	*$240,000 / 60,000 DL hrs = $4.00/DLH*
Fixed	*$330,000 / 60,000 DL hrs = $5.50/DLH*
Total	*$570,000 / 60,000 DL hrs = $9.50/DLH* **2 points**

Therefore, total overhead applied is 66,000 DLH x $9.50/DLH = ***$627,000*** **1 point**

*Requirement 2: (***1 point for overunderapplied and 2 points for each variance)**

Actual FOH = $571,700 ($238,700 + $333,000). Applied FOH is $627,000 (above).
Therefore, overapplied overhead is $55,300. **1 point**
This reconciles to the following variance analysis:

(i) *Variable overhead spending variance*
= (AVOR – SVOR) x AH
= ($3.85 – $4.00) x 62,000
= ***$9,300 F*** **0, 1 or 2 points**

(ii) *Variable overhead efficiency variance*
= (AH – SH) x SVOR
= (62,000 – 66,000) x $4.00
= ***$16,000 F*** **0, 1 or 2 points**

(iii) *FOH Budget Variance*
= Actual FOH – budgeted FOH
= $333,000 – $330,000
= ***$3,000 U*** **0, 1 or 2 points**

(iv) *Production Volume Variance*
= FOH rate x (SH x DH)
= $5.50/DLH x (66,000 – 60,000)
= ***$33,000 F*** **0, 1 or 2 points**

Requirement 3: **(1 point each to a total of 4 points).** *If explanation is incomplete or vague, award ½ mark or 0 marks)*

Variable Overhead Spending Variance:

This variance includes both price and quantity elements. The overhead spending variance reflects differences between actual and standard prices for variable overhead items. It also reflects differences between the amounts of variable overhead inputs that were actually used and the amounts that should have been used for the actual output of the period. Since the variable overhead spending variance is favourable, either VOH items cost less for Foster to purchase than the standards allow or less VOH items were used than the standards allow.

Variable Overhead Efficiency Variance:

This variable measures the indirect effect on variable overhead of the efficiency or inefficiency with which the activity base (machine hours) is utilized. In this company, there were 4,000 fewer machine hours used than indicated by the standards (66,000 versus 62,000). Therefore, Foster Company was quite efficient in the utilization of its chosen cost driver.

Fixed Overhead Budget Variance

This variance is simply the difference between the budgeted fixed cost and the actual fixed cost. In Foster's case, the variance is unfavourable which indicates that actual fixed costs ($333,000) were higher than anticipated in the budge ($330,000).

Production Volume Variance:

This variance occurs as a result of actual activity being different from the denominator activity as reflected in the predetermined fixed overhead rate. In this case, the variance is favourable, since the standard machine hours allowed based upon output produced (66,000 hours) was more than the planned denominator activity (60,000 hours). This reflects an overutilization of Foster's plant facilities.

Q.13 (16)

It is April 17, 2007 and Larry Miller, the general manager of Basil Software, must decide when to release the new version of Basil's spreadsheet package, Easyspread 2.0. Development of the product is complete. If Miller decides to introduce Easyspread right away, it will take a little over a month for the product to be manufactured and packaged. The product can be shipped starting June 1, 2007.

The key problem is that Basil has overstocked the previous version of its spreadsheet package, Easyspread 1.0, because of a threatened strike at its printers. As a result, Basil will still have 60,000 units of Easyspread 1.0 (consisting of diskettes, compact discs, and user manuals) in inventory as of June 1, 2007. Miller knows that once Easyspread 2.0 is introduced, Basil will not be able to sell any more units of Easyspread 1.0. Rather than just throwing away the inventory of Easyspread 1.0, Miller is wondering if it might be better to continue to sell Easyspread 1.0 for the next 3 months, and introduce Easyspread 2.0 on September 1, 2007, when the inventory of Easyspread 1.0 will be completely used up.

The following information is available.

	Easyspread 1.0	**Easyspread 2.0**
Selling price	$150	$185
Cost per unit of diskettes, compact discs, user manuals	20	25
Development costs per unit	65	95
Marketing and administration costs per unit	35	40
Total costs per unit	120	160
Operating income per unit	$ 30	$ 25

a. Basil contracts with outside vendors to print manuals and duplicate compact discs and diskettes.
b. Development costs per unit for each product equal the total costs of developing the software product divided by the anticipated unit sales over the life of the product.
c. Marketing and administration costs are fixed costs in 2007, incurred to support all marketing and administrative activities of Basil Software. Marketing and administration costs are allocated to products on the basis of the budgeted revenues of each product. The preceding unit costs assume Easyspread 2.0 will be introduced on September 1, 2007.

Required:

13.1 On the basis of financial considerations alone, should Miller introduce Easyspread 2.0 on June 1, 2007, or wait until September 1, 2007? You may assume that the same number of units of either Easyspread 2.0 units or Easyspread 1.0 units can be sold between June 1, 2007 and August 31, 2007. Show your calculations, clearly identifying relevant and irrelevant revenues and costs.
13.2 What other factors might Larry Miller consider in making a decision?

Answer:

1. Easyspread 2.0 has a higher relevant operating income than Easyspread 1.0. Based on this analysis, Easyspread 2.0 should be introduced immediately:

	Easyspread 1.0		***Easyspread 2.0***	
Relevant revenues	*$150*	**1 point**	*$185*	**1 point**
Relevant costs:				
Manuals, diskettes	*$0*	**1 point**	*$25*	**1 point**
Development Costs	*NR*	**1.5 points**	*NR*	**1.5 points**
Marketing and Administration	*NR*	**1.5 points**	*NR*	**1.5 points**
Total relevant costs	*0*		*25*	
Relevant operating income	*$150*		*$160*	

Reasons for other cost items being irrelevant are:
Easyspread 1.0

- *Manuals, diskettes – already incurred*
- *Development costs – already incurred*
- *Marketing and administration – fixed costs of period*

Easyspread 2.0

- *Development costs – already incurred*
- *Marketing and administration – fixed costs of period*

Note that total marketing and administration costs will not change whether Easyspread 2.0 is introduced on June 1, 2007 or on September 1, 2007.

2. *Other factors to be considered:* **3 points each for any two**

a. Customer satisfaction. If 2.0 is significantly better than 1.0 for its customers, a customer-driven organization would immediately introduce it
b. Quality level of Easyspread 2.0. It is critical for new software products to be fully debugged. Easyspread 2.0 must be error-free.
c. Importance of being perceived to be a market leader. Being first in the market with a new product can give Basil Software a "first-mover advantage,"
d. Morale of developers. These are key people at Basil Software. Delaying introduction of a new product can hurt their morale, especially if a competitor then preempts Basil from being viewed as a market leader.
e. Development of business relationships with distributors.

Alternative ways of disposing of Easyspread 1.0. Basil can donate all 60,000 Easyspread 1.0 packages to public schools and claim a tax deduction. Basil must also consider the costs of disposing of Easyspread 1.0 (e.g., shredding the packages).

Q.14 (16)

Myers and Wilson is an accounting firm that performs three basic services: assurance, tax, and consulting. Melli Varner, the firm's accountant, plans to revise and update the fee structure. Clients are currently charged a fee based on salary plus an overhead charge, based on the following:

Total annual salaries	$5,000,000
Total annual overhead costs	$1,800,000

Ms. Varner is not happy with this charging method. She knows that overhead costs actually differ according to the service provided because of different levels of support each type requires. After much effort, she determines the following by service:

	Assurance	Tax	Consulting	Total
Annual chargeable hours	50,000	30,000	20,000	100,000
Annual salaries	$2,000,000	$1,600,000	$1,400,000	$5,000,000
Annual overhead	$400,000	$900,000	$500,000	$1,800,000

She also believes that chargeable hours, not salary dollars, drive overhead cost.

She analyzed a client account, **Wyse Partners**, and found the following.

	Assurance	Tax	Consulting	Total
Chargeable hours	900	400	100	1,400
Salary cost	$42,000	$22,000	$7,000	$71,000

Required:

14.1 Calculate the annual overhead rate per dollar of total annual salary, the current method.

$1,800,000/ $5,000,000 = 36% or $0.36 per dollar of salary. **2 points**

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14. 2 Determine the total cost to be charged to **Wyse Partners** account based on the current method.

$71,000(salary) plus 36% x $71.000 = $96,560 **2 points**

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14.3 Compute overhead rates for each type of service, based on annual chargeable hours.

	Assurance	*Tax*	*Consulting*
Annual overhead	*$400,000*	*$900,000*	*$500,000*
Annual chargeable hours	*50,000*	*30,000*	*20,000*
Rate	*$8*	*$30*	*$25*
	1 point	**1 point**	**1 point**

14.4 Determine the amount of total cost to be charged to the **Wyse Partners** account based on ABC costing in part **14.3**.

	Assurance	*Tax*	*Consulting*	*Total*
Chargeable hours	*900*	*400*	*100*	*1,400*
Overhead costs	*$7,200*	*$12,000*	*$2,500*	*$21,700*

1 point for each allocation

Total = $71,000 + $21,700 = $92,700 **minus 1 point if salary missing**

3 points

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14.5. Explain the reason for the difference between **14.2 and 14.4**. Be brief.

Wyse used relatively more of the low-overhead assurance services than of the higher-overhead tax and consulting services. **3 points**

14.6 Which basis for charging clients, the one here or the one from previous exercise, makes the most sense to you? Why? Be brief.

The ABC method more accurately allocates costs ***if*** *we have evidence that hours are a better cost driver than dollars.* **1 point** *It seems reasonable that a $50 an hour accountant would not generate more overhead than a $40 an hour one.* **1 point**

Over time, charging based on hours or dollars without reference to the specific services could influence the kinds of business the firm receives. Using traditional costing, because users of assurance services are overcharged, they will gravitate toward other firms, while users of tax and consulting services will move toward Myers and Wilson. **1 point**

3 points

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