CHAPTER 7 INCREMENTAL ANALYSIS

Make or Buy -- FINAL WINTER 2014 QUESTION II. PART-A.

H LTd has been making a part for its end product for years. The unit cost of producing 10,000 units last year was as follows:

Direct material	2.10
Direct labour	4.60
Supervision salary (avoidable, fixed)	3.60
Depreciation	1.80
Variable factory overhead	1.30
Other allocated fixed factory overhead	2.25

The company has received an offer to supply their annual requirements from a Korean company at $12 per unit. If the offer is accepted, the machinery will be scrapped.

Required:
1. If the company needs the same number of parts as last year, should they make or buy the part?
2. At what level of production would the company be indifferent between making and buying?

SELL AS IS OR PROCESS FURTHER PART-B

Variable Products Co. produces 3 products from a $4,500 joint process. These products can be processed further to form another set of 3 products. There are markets for all of the products. Data for the current period are:

Products	At Separation Sales Value	Additional Costs	Products	After Processing Sales Value
A	$2,750	$2,450	X	$5,450
B	650	900	Y	1,350
C	3,600	3,800	Z	7,600

Instructions:
1. What is the net income if the best product mix is chosen?
2. If there was no market for B at the split-off point, should it be processed further?
3. If an A could be processed directly, at no cost, into a C, at what opportunity cost should A be valued for purposes of making this decision?
4. Referring to question 3 above, should A be processed into C? Why or why not?
5. Assume that C can be processed directly into an X. If the firm is not to be any worse off as a result, the cost of processing should not exceed how much?
6. Assume that A can be processed into Z at a cost of $5,250. If the sales value of Z is stable, to what level would the price of X have to fall before the firm is justified in taking this course of action?

RETAIN OR REPLACE EQUIPMENT: JUNE 2009 PROBLEM II 15 MARKS

Tecko manufactures an electronic component for a high-end computer. The company currently sells 50,000 units a year at a price of $180 per unit. These units are produced using a machine that was purchased five years ago at a cost of $1.2 million. It currently has a book value of $600,000; however, due to its specialized nature, it has a market value today of only $70,000. The machine, which is expected to last another five years, will have no salvage value. The costs to produce an electronic component are as follows:

Direct materials	$ 15.00
Direct labour (4 hours × $30.00/hour)	120.00
Variable overhead (4 hours × $2.40/hour)	9.60
Total variable costs per unit	$144.60

The company expects the following changes for next year:

- The unit selling price will increase by 10 percent.
- Direct labour rates will increase by 15 percent.
- Sales are expected to increase to 52,000 units (within the capacity of present facilities) and remain at that level.

Management is currently considering the replacement of the company's old machine with a new one that would cost $2.5 million and produce 52,000 units per year for five years. The new machine is expected to last five years and to have a salvage value of $107,375 (straight-line amortization is used). By using the new machine, management expects to cut direct labour hours to 3.5 hours per unit, but the company will have to hire an operator for the machine at $90,000 per year.

Instructions

(a) Determine whether or not the company should purchase the new machine. 7 marks

(PARTS B & C EXCLUDED BECAUSE THEY ARE CVP QUESTIONS)

UNPROFITABLE SEGMENT & LIMITED RESOURCES: JUNE 2009 PROBLEM I

Steel Shop Co. manufactures three types of computer desks. The income statement for the three products and the whole company is shown below:

	Product A	Product B	Product C	Total
Sales	$50,000	$60,000	$65,000	$175,000
Variable costs	25,000	40,000	60,000	125,000
Fixed costs	16,000	12,000	8,000	36,000
Total costs	41,000	52,000	68,000	161,000
Operating income	$ 9,000	$ 8,000	$ (3,000)	$ 14,000

The company produces 1,000 units of each product. The company's capacity is 9,000 labour hours. The labour for each product is four hours for Product A, three hours for Product B, and two hours for Product C. Fixed costs are allocated based on labour hours.

(a) If the current production levels are maintained, should the company eliminate Product C? Explain your reasoning. 3 marks

(b) If the company can sell unlimited quantities of any of the three products, which product should be produced? 4 marks

Winter 2009 Q1 Part-B – 10 Points

Brookfield Co. manufactures four different products. Because the quality of its products is high, the demand for the products is more than the company can produce. Based on the enquiries made by current and potential customers, you have estimated the following for the coming year:

Product	Estimated Demand in Units	Selling Price per Unit	Direct Materials Cost per Unit	Direct Labour Cost per Unit
A	8,000	$ 50	$ 5	$ 5
B	24,000	60	10	9
C	20,000	150	25	30
D	30,000	100	15	20

The following information is also available:

1. The direct labour rate is $15 per hour and the factory has a capacity of 80,000 hours. For the next year, Brookfield Co. is unable to expand this capacity.
2. Brookfield Co. is unwilling to increase its selling prices.
3. Apart from direct materials and direct labour, the only other variable expense is variable overhead. The variable overhead is 50% of the direct labour cost.
4. Fixed manufacturing overhead is estimated to be $1 million for the year. Fixed marketing & administrative expenses are estimated to be $750,000 for the coming year.

Instructions

Which products and how many units of each should Brookfield Co. produce in the coming year in order to maximize its operating income?

CHAPTER 8 ALT COSTING

FALL 2014 - QUESTION IV. 20 MARKS

XYZ Equipment Company manufactures and distributes industrial air compressors. The following data are available for the year ended December 31, 2013. The company had no beginning inventory. In 2013, it produced 1,600 units but sold only 1,200 units. The unit selling price was $4,500. Costs and expenses were as follows:

Variable costs per unit	
Direct materials	$ 800
Direct labour	1,500
Variable manufacturing overhead	300
Variable selling and administrative expenses	70
Annual fixed costs and expenses	
Manufacturing overhead	$1,200,000
Selling and administrative expenses	100,000

Instructions

(a) Compute the manufacturing cost per unit for the following costing methods
- absorption –costing
- variable-costing
- Throughput-costing

(b)Prepare income statement for XYZ Company for the year 2013 using Throughput costing method in a good format.

c) Calculate the net income for 2013 using the variable costing method. It is not necessary to prepare the income statement.

(d) Reconcile the difference between variable-costing and throughput-costing net income.

(e) Calculate the net income for 2013 using the absorption costing method. It is not necessary to prepare the income statement.

(f)Reconcile the difference between variable-costing and absorption-costing net income.

Winter 2014 QUESTION III. 17.5 MARKS

CFO of Current Designs Corporation retrieved the following information with respect to the top-selling of rotomolded kayaks product line from the income statements for the last two years. During these two years it produced 3,000 units in first year and 2,400 in the second year, while sales were 2,400 units in the first year and 2,700 in the second year. Variable production costs were $570 per unit during both years (direct materials $200, direct labour $175, and variable overhead $195). The company uses Last-in, first-out (LIFO) for inventory costing. The absorption costing comparative income statements for these 2 years were:

		YEAR 1		YEAR 2
Sales		$2,280,000		$2,565,000
Less cost of goods sold:				
Beginning inventory	$0		$480,000	
Product costs	$2,400,000		$2,058,000	
Ending inventory	-$480,000	$1,920,000	-$240,000	$2,298,000
Gross profit		$360,000		$267,000
Less operating expenses(S&A):				
Variable	$120,000		$135,000	
Fixed	$30,000	$150,000	$30,000	$165,000
Operating income		$210,000		$102,000

Instructions

a. Using the information provided prepare condensed, two-year comparative income statements using the variable costing method. Reconcile the variable costing income with the absorption costing income.

b. Assume that Current Designs uses a normal costing method. The company had budgeted 3,200 units of production for each of the two years. Prepare condensed, two-year comparative income statements using the Normal costing method. Reconcile the variable costing income with the normal costing income statements.

c. Using the information provided above prepare condensed, two-year comparative income statements using the throughput costing method. Reconcile the normal costing income statements with the throughput costing income statements.

CHAPTER 9

Target Costing

FALL 2012 - QUESTION II. 20 MARKS

PART-A 4 MARKS

Clear Water is considering introducing a water filtration device for its one-litre water bottles. Market research indicates that 1 million units can be sold if the price is no more than $3. If Clear Water decides to produce the filters, it will need to invest $2 million in new production equipment. Clear Water requires a minimum rate of return of 20% on all investments.
Instructions
Determine the target cost per unit for the filter.

PART-B 4 MARKS

Floor Show Corporation produces area rugs. The following per-unit cost information is available: direct materials $18, direct labour $9, variable manufacturing overhead $5, fixed manufacturing overhead $6, variable selling and administrative expenses $3, and fixed selling and administrative expenses $7.
Instructions

Using a 35% markup on total per-unit cost, calculate the target selling price.

TRANSFER PRICING

JUNE 2012 QUESTION III. 12 MARKS

The Furniture Division of Kelowna Woodcraft purchases lumber, which it uses to fabricate tables, chairs and other quality wood furniture. Most of the lumber is purchased from the South- shore Mill, also a division of Kelowna Woodcraft. Both the Furniture Division and South-shore Mill are profit centres.

The Furniture Division proposes to produce a new Danish-designed chair that will sell for $92. The manager is exploring the possibility of purchasing the required lumber from the South-shore Mill. Production of 800 chairs is planned, using capacity in the Furniture Division that is currently idle.

The Furniture Division can purchase the lumber from an outside supplier, Okanagan Lumber, for $62. Kelowna Woodcraft has a policy that internal transfers are priced at fully allocated cost.

Assume the following costs for the production of one chair and the lumber required for the chair:

South shore Mill	
Variable cost	$48
Allocated fixed cost	22
Fully allocated cost	$70

Furniture Division		
Variable costs:		
Lumber from South shore Mill		$70
Furniture Division variable costs:		
Manufacturing	$21	
Selling	6	27
Total cost		$97

Required:

A. Assume that South-shore Mill has idle capacity and therefore would incur no additional fixed costs to produce the required lumber. Would the Furniture Division manager buy the lumber for the chair from the South-shore Mill, given the existing transfer pricing policy? What would be the maximum price the Furniture Division could pay for the wood on these chairs? What would be the minimum transfer price possible from the South-shore Mill under their current capacity situation? **4 Marks**

B. Would Kelowna Woodcraft as a whole benefit from the transfer if the Furniture Division decides to buy from South-shore Mill? Show all computations. **4 Marks**

C. Assume that there is no idle capacity at the South-shore Mill and the lumber required for one chair can be sold to outside customers for $70. Would the company as a whole benefit if the manager decides to buy? Show all computations. **4 Marks**

SUMMER 2006 Question 5 (10 marks)

A nursery has 3 divisions: the Western Division, the Central Division and the Eastern Division. All three grow and sell plants for gardens. Recently, the Central Division has acquired a facility that manufactures plastic pots. The pots can be sold both externally and internally. Company policy permits manager to decide whether to buy or sell internally. Each manager is evaluated based on both ROI and EVA.

The Western Division has been buying its plastic pots in lots of 100 from several vendors. The average price paid is $75 per box of 100 pots. However, the recent acquisition makes the manager of the Western Division wonder whether a more favourable price can be arranged. She approaches the manager of the Central Division with a request to transfer 3,500 boxes at $70 per box.

The cost and revenue of a box of 100 pots is as follows:

Direct materials	$35	
Direct Labour		8
Variable overhead	10	
Fixed overhead ($200,000/20,000 boxes)		10
Total unit cost		$63
Selling price	$75	
Production capacity	20,000 boxes	

Required:

1. Suppose the pot facility is producing at capacity and can sell its entire production to outside customers. How should the manager respond to the request for a lower transfer price? **(4 Marks)**

2. Assume that the pot facility is currently selling 16,000 boxes. What are the minimum and maximum transfer prices? Should the manager transfer at $70 per box? **(4 Marks)**

3. Suppose that the company's policy is to make all transfers at full cost plus 20 percent. Should the transfer occur? Explain why or why not? **(2 Marks)**

TIME AND MATERIALS

JUNE 2009 PROBLEM IV 15 MARKS

Doc's Auto Body has budgeted the costs of the following repair time and parts activities for 2009:

	Repair Time Activity	Parts Activity
Shop employees' wages and benefits	$111,000	$ 0
Parts manager's salary and benefits	0	26,600
Office employee's salary and benefits	21,000	12,000
Cost of parts used	0	200,000
Overhead (supplies, amortization, advertising, utilities)	24,600	15,000
Total budgeted costs	**$156,600**	**$253,600**

Doc's budgets 6,000 hours of repair time in 2009. A profit margin of $7 per labour hour will be added to the hourly rate for repairs, and a 50% profit markup will be added to the cost of parts used.

On January 10, 2009, Doc's is asked to submit a price quotation for the repair of a 2007 Chevrolet Blazer that was damaged in a head-on collision. Doc's Auto estimates that this repair will consume 61 hours of labour and $4,200 in parts.

Instructions

(a) Calculate the labour rate to be charged to customers by Doc's Auto Body for 2009. 3 Marks

(b) Calculate the parts mark-up percentage to be added to the cost of parts used by Doc's Auto Body for 2009. (Round to three decimal places.) 6 Marks

(c) Prepare a time and parts price quotation for the repair of the 2007 Chevrolet Blazer. 6 Marks

CHAPTER 10 – BUDGETS

Winter 2014 QUESTION IV. 17.5 POINTS

Celery Ltd. provides you with following information for budget purposes for 2014:

	January	February	March	April
Sales (@ $50 per unit)	$50,000	$60,000	$70,000	$30,000

Sales are 60% for cash and 40% on account. Sixty-percent of the credit sales are collected in the month of the sale, and the remainder are collected in the month after the sale.

It takes 2 Kg of direct material to produce one finished unit. Direct materials cost $7 per Kg. All direct materials purchases are on account, and are paid as follows: 30% in the month of the purchase, and the remainder in the following month. Ending direct materials inventory for each month is 30% of the next month's production needs. Conversion costs are $15 per finished unit, and are paid in the month incurred. Assume there are no finished goods or work-in-process inventories at the end of a month.

Fixed selling and administrative costs are $5,000 per month. This amount includes $500 for depreciation and amortization.

Variable selling and administrative costs are 10% of sales.

Selling and administrative costs are paid in the month that they are incurred.

A dividend of $2,000 will be paid in January. Capital expenditures, in cash, will be $29,000 in March.

January's actual beginning direct materials inventory was 1,000 Kg @ $6.90. Accounts receivable, Merchandise inventory and Accounts payable each had nil (zero) balances on December 31, 2013. Cash balance on December 31, 2013 was $5,000; this also represents the minimum cash balance that Celery must maintain at the end of each month. Borrowing is made in multiples of $500. Borrowed funds, along with interest, are repaid at the end of the year only.

Instructions

Prepare in proper form a monthly cash budget for the quarter ending March 31, 2014. Your cash budget should therefore show four columns of budget data, i.e., data for each month and the quarter as a whole. Present details of all calculations very clearly so that your work can be followed easily.

FALL 2011 (DEC 2011) QUESTION V. 18 MARKS

Gold Company has the following balances at December 31, 2010: Cash $6,000; accounts receivable $34,000 ($10,000 from November and $24,000 from December); merchandise inventory $40,000; and accounts payable $20,000 (for merchandise purchases only). Budgeted sales follow:

January	$ 50,000
February	90,000
March	60,000
April	100,000

Other data:

* Sales are 40% cash, 50% collected during the following month, and 10% collected during the second month after sale. A 3% cash discount is given on cash sales
* Cost of goods sold is 40% of sales
* Merchandise ending inventory must be 140% of the next month's cost of sales
* Purchases are paid 70% in month of purchase and 30% in the following month
* The selling and administrative cost function is: $6,000 + $0.2 × sales. This includes $1,000 for depreciation
* All costs are paid in the month incurred
* Minimum cash balance requirement is $6,000 and any loans or repayments are made in $1,000 amounts.

Instructions: Answer the following questions

1. What will be the budgeted cost of merchandise purchases for February? **2 Marks**
2. What will be the ending merchandise inventory for March? **2 Marks**
3. What will be the cash disbursements for merchandise purchases in March? **3 Marks**
4. What will be the ending balance in accounts payable for March? **2 Marks**
5. What will be accounts receivable balance at the end of March? **3 Marks**
6. What will be Cash receipts for April? **2 Marks**
7. What will be the ending cash balance for January? **4 Marks**

CHAPTER 11 – ROI QUESTIONS

Summer 2012. Mcq #19.

An organization's required rate of return is 10%. The ROI of Divisions A and B, respectively, is 10% and 15%. Each Division is considering a project that will have a 12% rate of return. If residual income is used to evaluate divisions, which of the following statements is true?

a. Both divisions will accept the project
b. Both divisions will reject the project
c. Division A will accept, and Division B will reject, the project
d. Division A will reject, and Division B will accept, the project
e. cannot be determined

Dec 2012 (fall) MCQ #10)

1. A segment with an ROI of 30% has an income of $84,000. The company's required rate of return on segment investments is 18%. The segment's residual income is
   a. $50,400 b. $25,200 c. $26,712 d. $33,600

Dec 2013 (fall) MCQ #13 & 14

13. If the operating asset turnover ratio increased by 30 % and the profit margin increased by 20% , by how much would the ROI change?
    a. increase 20% b.increase 56% c.decrease 50% d.decrease 60%

14. If the operating asset turnover ratio increased by 30 % and the profit margin decreased by 30 %, how would the ROI respond?
    a. decrease by 9 % b. increase by 69 % c. increase by 90% d. decrease by 91%

WINTER 2014 Use the following information to calculate and answer the next 4 questions. Teresa's Taco Co. had the following results during the most recent year: Sales $750,000; Residual income $15,000; total asset (investment) turnover 5; and a required rate of return of 10%.

The total assets were

a.	*$150,000*	b.	$75,000	c.	$170,000
d.	$200,000	e.	None of the above		

The operating (pretax) income was

a.	*$30,000*	b.	$192,500	c.	$35,000
d.	$16,250	e.	None of the above		

The return on assets was

a.	*20%*	b.	21.67%	c.	15.25%
d.	**17.5%**	e.	None of the above		

The profit margin was

a.	7%	b.	*4%*	c.	7.5%
d.	3.25%	e.	None of the above		

CHAPTER 12 – VARIANCE QUESTIONS

FALL 2012 QUESTION III. 20 MARKS

Montreal Corporation manufactures a single product. The standard cost per unit of product is as follows:

Direct materials—2 kg of plastic at $5 per kilogram	$10.00
Direct labour—2 hours at $12 per hour	24.00
Variable manufacturing overhead	8.00
Fixed manufacturing overhead	6.00
Total standard cost per unit	$48.00

The master manufacturing overhead budget for the month based on the normal productive capacity of 20,000 direct labour hours (10,000 units) shows total variable costs of $80,000 ($4 per labour hour) and total fixed costs of $60,000 ($3 per labour hour). Actual costs for producing 9,500 units in November were as follows:

Direct materials (21,000 kg)	$102,900
Direct labour (18,500 hours)	231,250
Variable overhead	77,500
Fixed overhead	65,000
Total manufacturing costs	$476,650

The purchasing department normally buys the quantities of raw materials that are expected to be used in production each month. Raw materials inventories, therefore, can be ignored.

(a) Calculate the material price; efficiency (quantity) and total material budget variances fo period.

(b) Calculate the labour rate; efficiency (quantity) and total labour budget variances for the period.

(c) Calculate the variable overhead spending; efficiency (quantity) and the total variable overhead budget variances for the period.

(d) Calculate the fixed overhead spending; the overhead volume variance and the total budget fixed overhead variances for the period.

FALL 2006 QUESTION 4. Budget variance analysis

Stephen Roget, a financial analyst for Croton Industries, Inc., has been given information with respect to standard cost variances for one of the plants. These variances are given below.

Materials quantity variance	$ 7,000 favourable
Labour rate variance	4,000 favourable
Labour efficiency variance	12,000 unfavourable
Factory overhead spending variance.	3,000 favourable
Factory overhead efficiency variance.	6,000 unfavourable
Factory overhead volume variance	50,000 favourable

He has determined that the company has manufactured 50,000 units of product with standard costs as follows:

Direct materials	$ 700,000
* Direct labour	300,000
Variable factory overhead	150,000
Fixed factory overhead	250,000

Total standard cost	$ 1,400,000
	==========

* Standard labour time per product unit is 30 minutes.

The actual fixed factory overhead was equal to the master budgeted fixed factory overhead. Roget would like to use the variances to develop some of the cost data for the fiscal period.

REQUIRED: SHOW YOUR COMPUTATIONS. (2 marks each)

1. How many units of product should be manufactured at the master budget capacity?
2. Determine the total fixed factory overhead for the master budget.
3. How many direct labour hours should have been used to manufacture 50,000 units of product?
4. How many direct labour hours were used?
5. What were the total actual costs of direct labour?
6. What were the total standard costs of the direct materials used in production?
7. What was the actual variable factory overhead cost?
8. What was the budget variable factory overhead for actual time used to manufacture the 50,000 units of product?
9. What was the budget variable factory overhead for the required time to manufacture the 50,000 units of product?

JUNE 2009 PROBLEM VI 20 MARKS

Montreal Manufacturing Company uses a standard cost system in accounting for the cost of its main product. The following standards have been established for the direct manufacturing costs per unit:

Direct materials (1 kg at $5/kg)	$5.00 per unit
Direct labour (2 hrs. at $4/hr.)	$8.00 per unit

Budgeted overhead for the month of April (based on expected activity of 4,000 direct labour hours) is as follows:

Variable overhead	$19,000
Fixed overhead	8,000
Total overhead	$27,000

Overhead is applied based on labour hours. The average activity per month is 5,000 direct labour hours. The company calculates overhead rates based on average activity. Results for the month of April are as follows:

Units produced	2,100
Direct materials used (2,500 kg)	$11,000
Direct labour (4,320 hrs.)	18,144
Variable overhead	21,410
Fixed overhead	8,125
Total costs	$58,679

There was no beginning or ending work in process inventory.

Instructions

Calculate the following: 4 Marks Each

(a) Direct materials price, usage, and budget variances

(b) Labour price, usage, and budget variances

(c) Variable overhead spending, quantity, and budget variances

(d) Fixed overhead spending and volume variances

(e) The overhead controllable variance

FALL 2011 - QUESTION VI. 18 MARKS

At the end of June the manager of the B.C. manufacturing plant was provided with the following variance analysis report.

	Budget	Actual	Variance	Favourable/ Unfavourable
Production in units	338,000	344,475	6,475	F
Production costs:				
			$	
Direct material	$ 557,700	$ 571,484	(13,784)	U
Direct labour	1,521,000	1,572,185	(51,185)	U
Variable overhead costs	126,750	132,488	(5,738)	U
Fixed overhead costs	195,195	192,612	2,583	F
Total production costs	$2,400,645	$2,468,769	$(68,124)	U

The manager immediately called the production supervisor, demanding an explanation for the large unfavourable variance for the quarter. The production supervisor was puzzled. He thought the cost-cutting measures they had incorporated were beginning to work. He certainly wasn't expecting such a large discrepancy.
The budget that was used to establish the standard rates as follows:

	Volume	Cost
Direct material	1.10 kg per unit	$1.50 per kg
Direct labour	0.25 hour per unit	$18.00 per hour
Predetermined overhead rate:		
Variable	1.00 direct labour hour	$1.50 per hour
Fixed	1.00 direct labour hour	$2.31 per hour

Other relevant information:

1. A total of 375,000 kg of direct materials was purchased during the quarter at a cost of $1.58 per kilogram.

2. A total of 361,699 kg of direct materials was used to manufacture 344,475 units.

3. Payroll recorded 88,325 direct labour hours at an average cost of $17.80 per hour.

Instructions

Do you agree with the plant manager that the production supervisor performed poorly, as might be indicated by the large unfavourable variance? Explain fully. Include in your response calculations of all production variances for direct materials, direct labour, variable overhead, and fixed overhead.