

**CMA APRIL, 2019 SPECIAL EXAMINATION
PROFESSIONAL LEVEL-IV
SUBJECT: 402. STRATEGIC MANAGEMENT ACCOUNTING**

Time: Three hours

Full Marks: 100

- ❖ All questions are to be attempted.
- ❖ Show computations, where necessary.
- ❖ Answer must be brief, relevant, neat and clean.
- ❖ Start answering each question from a fresh sheet.

Q. No. 1

- (a) What is EVA? Doorchime Company makes doorbells. It has a weighted average cost of capital of 9%, and total assets of \$5,550,000. Doorchime has current liabilities of \$800,000. Its operating income for the year was \$630,000. Doorchime does not have to pay any income taxes. One of the expenses for accounting purposes was a \$90,000 advertising campaign. The entire amount was deducted this year, although the Doorchime CEO believes the beneficial effects of this advertising will last four years.

Required:

Calculate EVA for the year. Adjust both the assets and operating income for advertising assuming that for the purposes of economic value added the advertising is capitalized and amortized on a straight line basis over four years.

- (b) Superior Motor Company makes electric cars and has only two products, the Simple green and the Superior green. To produce the Simple green, Superior Motor employed assets of \$13,500,000 at the beginning of the period, and \$13,400,000 of assets at the end of the period. Other costs to manufacture the Simple green include the following:

Direct materials \$3,000 per unit

Setup \$1,300 per setup-hour

Production \$415 per machine-hour

General administration and selling costs total \$7,340,000 for the period. In the current period, Superior Motor produced 10,000 Simple green cars using 6,000 setup-hours and 175,200 machine-hours. Superior Motor sold these cars for \$12,000 each.

Required:

- (i) Assuming that Superior Motor defines investment as average assets during the period, what is the return on investment for the Simple green division?
- (ii) Calculate the residual income for the Simple green if Superior Motor has a required rate of return of 12% on investments.
- (c) A firm produces three products A, B and C. It uses two types of raw materials I and II of which 5,000 and 7,500 units respectively are available. The raw material requirements per unit of the products are given below:

Raw Material	Requirements per unit of Product		
	A	B	C
I	3	4	5
II	5	3	5

The labour time for each unit of product A is twice that of product B and three times that of product C. The entire labour force of the firm can produce the equivalent of 3,000 units. The (marks) minimum demand of the three products is 600, 650 and 500 units respectively. Also, the ratios of the number of units produced must be equal to 2: 3: 4. Assuming the profits per unit of A, B and C as Taka 50, 50 and 80 respectively.

Required:

Formulate the problem as a linear programming model in order to determine the number of units of each product which will maximize the profit.

[Marks: (1+6) + (4+2) +12) = 25]

Q. No. 2

- (a) What are the three methods that companies use to identify quality problems?
- (b) Dream Rider produces car seats for children from newborn to two years old. The company is worried because one of its competitors has recently come under public scrutiny because of product failure. Historically, Dream Rider's only problem with its car seats was stitching in the straps. The problem can usually be detected and repaired during an internal inspection. The cost of the inspection is \$4, and the repair cost is \$0.75. All 250,000 car seats were inspected last year and 9% were found to have problems with the stitching in the straps during the internal inspection. Another 3% of the 250,000 car seats had problems with the stitching, but the internal inspection did not discover them. Defective units that were sold and shipped to customers needed to be shipped back to Dream Rider and repaired. Shipping costs are \$7, and repair costs are \$0.75. However, the out-of-pocket costs (shipping and repair) are not the only costs of defects not discovered in the internal inspection. For 20% of the external failures, negative word of mouth will result in a loss of sales, lowering the following year's profits by \$300 for each of the 20% of units with external failures.

Required:

- (i) Calculate appraisal cost, internal failure cost, out-of-pocket external failure cost, opportunity cost associated with the external failures and total cost of quality.
- (ii) Dream Rider is concerned with the high up-front cost of inspecting all 250,000 units. It is considering an alternative internal inspection plan that will cost only \$1.00 per car seat inspected. During the internal inspection, the alternative technique will detect only 5.0% of the 250,000 car seats that have stitching problems. The other 7.0% will be detected after the car seats are sold and shipped. What are the total costs of quality for the alternative technique?
- (c) The Champion Hardware Company manufactures specialty brass door handles at its Lynchburg plant. Champion is considering implementing a JIT production system. The following are the estimated costs and benefits of JIT production:
- Annual additional tooling costs would be Taka 100,000.
 - Average inventory would decline by 80% from the current level of Taka1,000,000.
 - Insurance, space, materials-handling, and setup costs, which currently total Taka 300,000 annually, would decline by 25%.
 - The emphasis on quality inherent in JIT production would reduce rework costs by 30%. Champion currently incurs Taka 200,000 in annual rework costs.
 - Improved product quality under JIT production would enable Champion to raise the price of its product by Taka 4 per unit. Champion sells 40,000 units each year.
 - Champion's required rate of return on inventory investment is 15% per year

Required:

Calculate the net benefit or cost to Champion if it adopts JIT production at the Lynchburg plant.

[Marks: 5+(5+5)+10 = 25]

Q. No. 3

The directors of NIVA Ltd are proposing to enter into the digital watch market and are considering three different types of systems. They only foresee a short term market for this particular watch and plan to cease operation on 31st December 2021.

The directors have prepared the following estimates relating to each possibility.

Machine cost (payable 1st January 2019):

System A	Tk. 100,000
System B	Tk. 130,000
System C	Tk.150,000

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Q. No. 3(cont'd...)

Annual Rent Receipts (receivable at end of each year):

Annual rent receipts will depend on how well the market responds and on the rate of inflation. At the prices expected to exist during 2019, annual net receipts will be:

	Low Demand	High Demand
System A	Tk. 20,000	Tk.70,000
System B	Tk. 25,000	Tk.70,000
System C	Tk.32,000	Tk.80,000

The directors estimate that in each year there is a 60% chance of high demand and a 40% chance of low demand. The chance of particular demand in any one year is independent of the demand in other years. Inflation during 2020 and 2021 is expected to be either 15% p.a.(probability equal to 0.3) or 25%p.a.(probability equal to 0.7). Whichever rate applies in 2020 will be repeated in 2021.

Additional Rent (payable at the end of year in which incurred)

Due to the extra space necessary, additional rent will be payable as follows:

System A	Tk. 4,000
System B	Tk. 5,000
System C	Tk.8,000

Rent payable is not subject to inflation.

Sale Proceeds as at 31st December 2021:

System A	Tk. 10,000
System B	Tk. 15,000
System C	Tk.15,000

Sale proceeds are not subject to inflation.

NIVA Ltd has a cost of capital of 20% p.a. in money terms.

- You are required to prepare calculations showing which machine should be purchased, assuming that the decision will be based on the expected present values of the costs of each system.
- Provide brief notes of any additional factors that may affect the decision.
- Discuss the limitations of using expected value as a criterion for making investment decision under uncertainty

[Marks: (15+5+5) = 25]

Q. No. 4

- Most products go through five stages in their life namely, Development, Introduction, Growth, Maturity and Decline. These stages have helped in the design of marketing strategies and it is now believed that it can be equally useful for accountants in the determination of the cost of products. In this regard, you are instructed to identify **FIVE** benefits of product life cycle costing.
- Budgetary control is one of the important tools used by management, yet most organisations are unable to derive its full benefits. In such a context, you are required identify and explain **five** reasons that may account for unsuccessful implementation of a budgetary control system.
- Give two reasons why the dual-pricing system of transfer pricing is not widely used. How do income tax considerations affect transfer pricing in multinationals?

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Q. No. 4(cont'd...)

- (d) The Bosh Corporation makes and sells 20,000 multisystem music players each year. Its assembly division purchases components from other divisions of Bosh or from external suppliers and assembles the multisystem music players. In particular, the assembly division can purchase the CD player from the compact disc division of Bosh or from Hawei Corporation. Hawei agrees to meet all of Bosh's quality requirements and is currently negotiating with the assembly division to supply 20,000 CD players at a price between \$44 and \$52 per CD player.

A critical component of the CD player is the head mechanism that reads the disc. To ensure the quality of its multisystem music players, Bosh requires that if Hawei wins the contract to supply CD players, it must purchase the head mechanism from Bosh's compact disc division for \$24 each.

The compact disc division can manufacture at most 22,000 CD players annually. It also manufactures as many additional head mechanisms as can be sold. The incremental cost of manufacturing the head mechanism is \$18 per unit. The incremental cost of manufacturing a CD player (including the cost of the head mechanism) is \$30 per unit, and any number of CD players can be sold for \$45 each in the external market.

Required:

- (i) What are the incremental costs minus revenues from sale to external buyers for the company as a whole if the compact disc division transfers 20,000 CD players to the assembly division and sells the remaining 2,000 CD players on the external market?
- (ii) What are the incremental costs minus revenues from sales to external buyers for the company as a whole if the compact disc division sells 22,000 CD players on the external market and the assembly division accepts Hawei's offer at (a) \$44 per CD player or (b) \$52 per CD player?
- (iii) What is the minimum transfer price per CD player at which the compact disc division would be willing to transfer 20,000 CD players to the assembly division?

[Marks: (5+5+4)+ (4+4+3) = 25]