Paper 17 – Strategic Performance Management

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Full Marks: 100 **Time allowed: 3 hours**

The figures in the margin on the right side indicate full marks.
This question paper has two sections.
Both the sections are to be answered subject to instructions given against each.

Section – A

Question no. 1 is compulsory

1. Answer the Following Questions: **[4 × 5 = 20]**

(a) The cost function 'c' for the commodity 'q' is given by C= $2q^3$ - $8q^2$ +10q. Find Average Variable cost and also find the value of q for which average variable cost is minimum.

Answer

Cost = $2q^3 - 8q^2 + 10q$

Average Variable Cost = $\frac{C}{Q} = 2q^2 - 8q + 10$ ('y' say)

$\Rightarrow \frac{d}{dq}(2q^2 - 8q + 10) = 0$

$\Rightarrow 4q - 8 = 0$

$\therefore q = \frac{8}{4} = 2$

$\frac{d^2y}{dq^2} = 2 > 0$, positive

∴ Average Cost is minimum at **q = 2**

(b) The following information relates to budgeted operation of Division X of a manufacturing company:

Particular	Amount (₹)
Sales: (50,000 units of ₹ 8)	**4,00,000**
Less: Variable cost @ ₹ 6 per unit	**3,00,000**
Contribution Margin	**1,00,000**
Less: Fixed Costs	**75,000**
Divisional Profit	**25,000**

The amount of divisional investment is ₹1,50,000 and the minimum desired rate of return on the investment is the cost of capital of 20%.

(i) Calculate divisional expected ROI;

(ii) Calculate divisional expected RI;

(iii) Comment on the results of (i) and (ii);

(iv) The divisional manager has the opportunity to sell 10,000 units at ₹ 7.50 per unit. Variable cost per unit would be the same as budgeted, but fixed costs would increase by ₹ 5,000. Additional investment of ₹ 20,000 would also be required. If the manger accepts the special order, by how much and in what direction would his residual income change?

Answer

(i) ROI = $\frac{₹25,000}{₹1,50,000} \times 100 = 16.7\%$

(ii) RI = Divisional Profit – Minimum desired rate of return
= ₹25,000 – (20% × ₹1,50,000)
RI = (₹5,000)

(iii) The desired rate of return is 20% but the division X is expecting to achieve an ROI of 16.7%. The expected profit of ₹25,000 is less than the ₹30,000 minimum return required, resulting in the negative of ₹5,000 residual income.

(iv) Opportunity to sell additional 10,000 unit

Particulars	Original budget ₹	Additional budget ₹	Total ₹
Sales	4,00,000	75,000	4,75,000
Less: variable cost	3,00,000	60,000	3,60,000
Contribution	1,00,000	15,000	1,15,000
Less: Fixed costs	75,000	5,000	80,000
Divisional profit	25,000	10,000	35,000
Less: Cost of capital (20%)	30,000	4,000	34,000
Residual Income	(5,000)	6,000	1,000

The target residual income changes from a negative balance of ₹ 5,000 to a positive one of ₹ 1,000 as a result of the new opportunity to sell 10,000 units. This is due to the fact that ₹ 10,000 expected profit from additional order is offset by a further ₹ 4,000 cost of capital, thereby increasing residual income by ₹ 6,000.

(c) Write a note on data availability.

Answer

Data availability is a term used by some computer storage manufacturers and storage service providers (SSPs) to describe products and services that ensure that data continues to be available at a required level of performance in situations ranging from normal through "disastrous." In general, data availability is achieved through redundancy involving where the data is stored and how it can be reached. Some vendors describe the need to have a data center and a storage-centric rather than a server-centric philosophy and environment.

In large enterprise computer systems, computers typically access data over high-speed optical fiber connection to storage devices. Among the best-known systems for access are ESCON and Fibre Channel. Storage devices often are controlled as a Redundant Array of Independent Disks (RAID). Flexibility for adding and reconfiguring a storage system as well as automatically switching to a backup or failover environment is provided by a programmable or manually-controlled switch generally known as a director.

Two increasingly popular approaches to providing data availability are the Storage Area Network (SAN) and Network-Attached Storage (NAS). Data availability can be measured in terms of how often the data is available (one vendor promises 99.999 per cent availability) and how much data can flow at a time (the same vendor promises 3200 megabytes per second).

(d) Discuss the rule of dominance of Game theory.

Answer

Rule of Dominance

This rule is applicable to a zero-sum game between two persons, with any number of strategies. For a pay-off matrix of large size, the rule of dominance can be applied to reduce the size by carefully eliminating rows and/or column prior to final analysis to determine the optimum strategy selection for each person.

In general the following rules are adopted:

(i) In a pay-off matrix if all the elements of any row (say ith) are less than or equal (i.e., <) to the corresponding elements of any other row (say jth), then the ith strategy is dominated by jth row; in other words the player (or person) A will ignore or reject the ith row. Thus the pay-off matrix is reduced.

(ii) In a pay-off matrix if all the elements of any column (say rth) arc greater than or equal to (i.e. >) to the corresponding elements of any other column (say sth) then the rth strategy is dominated by s-th strategy; in other words the player B will ignore or reject the r-th strategy, hence again the pay-off matrix is reduced.

(iii) A pure strategy may be dominated if it is inferior to the average of two or more other pure strategies.

(e) Describe the objectives of Management Information systems?

Answer

Management Information System (MIS) is a systematic process of providing relevant information in right time in right format to all levels of users in the organization for effective decision making. MIS is also defined to be system of collection, processing, retrieving and transmission of data to meet the information requirement of different levels of managers in an organization.

According to CIMA-

MIS is a set of procedures designed to provide managers at different levels in the organization with information for decision making, and for control of those parts of the business for which they are responsible.

MIS comprises of three elements viz., management, information and system.

Objectives of MIS:

- To provide the managers at all levels with timely and accurate information for control of business activities
- To highlight the critical factors in the operation of the business for appropriate decision making
- To develop a systematic and regular process of communication within the organization on performance in different functional areas
- To use the tools and techniques available under the system for programmed decision making
- To provide best services to customers
- To gain competitive advantage
- To provide information support for business planning for future.

Section - B

Answer any five questions **[16 × 5 = 80]**

2. (a) B manufacturing company sells its products at ₹ 1,000 per unit. Due to competition, its competitors are likely to reduce price by 15%. B wants to respond aggressively by cutting price by 20% and expects that the present volume of 1,50,000 units p.a. will increase to 2,00,000 units. B wants to earn at 10% target profit on sales. Based on

Particulars	Existing (₹)	Target (₹)
Direct Material Cost P.U	400	385
Direct manufacturing labour P.U	55	50
Direct machinery costs P.U	70	60
Direct manufacturing costs P.U	525	495
Manufacturing overheads:		
No. of orders (₹ 80 per order)	22,500	21,250
Testing hours (₹ 2 per hour)	45,00,000	30,00,000
Units reworked (₹ 100 per unit)	12,000	13,000

Manufacturing overheads are allocated using relevant cost drivers. Other operating costs per unit for the expected volume are estimated as follows:

Research and design	₹ 50
Marketing and customer	₹ 130
	₹ 180

Required:

(i) Calculate target costs per unit and target costs for the proposed volume showing break up of different elements.

(ii) Prepare target product profitability statement.

(b) State the objectives of Performance appraisal. **[12 + 4 = 16]**

Answer

(a) (i)

Target selling price : ₹1,000 less 20%	₹ 800
Less: Target profit margin (10%)	₹80
Target costs per unit	₹720

The break-up of ₹ 720 per unit are as follows:
Target Costs per unit:

Particulars	**Per unit (₹)**	
Direct materials		385
Direct manufacturing labour		50
Direct machining costs		60
Direct manufacturing costs		495
Add: Manufacturing overheads:		
Ordering and receiving (21,250 x ₹80)÷2,00,000	8.50	
Testing and inspection (30,00,000 x ₹2) ÷ 2,00,000	30.00	
Rework (13,000 x ₹100) ÷2,00,000	6.50	
		45
Total manufacturing costs		540
Other operating costs:		
Research and Design	50	
Marketing and Customer service	130	180
Full Product Costs		720

(ii) Target Product Profitability:

Particulars	Per unit (₹)	2,00,000 units (₹)
1. Sales	800	16,00,00,000
2. Costs of goods sold:		
Direct Materials	385	7,70,00,000
Direct labour	50	1,00,00,000
Direct Machining Costs	60	1,20,00,000
	495	9,90,00,000
Manufacturing overheads	45	90,00,000
	540	10,80,00,000
3.Gross margin (1-2)	260	5,20,00,000
4. Operating costs:		
Research and Design	50	1,00,00,000
Marketing and customer service	130	2,60,00,000
	180	3,60,00,000
5.Operating profit (3-4)	80	1,60,00,000

(b) Objectives of Performance Appraisal:

(i) To review the performance of the employees over a given period of time.
(ii) To judge the gap between the actual and the desired performance.
(iii) To help the management in exercising organizational control.
(iv) Helps to strengthen the relationship and communication between superior – subordinates and management – employees. subordinates and management – employees.
(v) To diagnose the strengths and weaknesses of the individuals so as to identify the training and development needs of the future.
(vi) To provide feedback to the employees regarding their past performance.
(vii) Provide information to assist in the other personal decisions in the organization.
(viii) Provide clarity of the expectations and responsibilities of the functions to be performed by the employees.
(ix) To judge the effectiveness of the other human resource functions of the organization such as recruitment, selection, training and development.
(x) To reduce the grievances of the employees.

3. (a) Reduce the following two- person zero-sum game to 2x2 order, and obtain the optimal strategies for each player and the value of the game

		Player B			
		B_1	B_2	B_3	B_4
Player A	A_1	3	2	4	0
	A_2	3	4	2	4
	A_3	4	2	4	0
	A_4	0	4	0	8

(b) From the following information calculate EVA:

Equity share capital	**₹ 10,00,000**
13% Preference share capital	**₹4,00,000**
Reserves and surplus	**₹ 12,00,000**
None trade investments (Face value ₹ 1,00,000), Rate of interest	**10%**
20% Debentures	**₹ 6,00,000**
Profits before tax	**₹ 6,00,000**
Tax rate	**40%**
WACC	**13%**

[8+ 8 = 16]

Answer

(a) We observe that all entries in the third row of the given matrix are greater than, or equal to, the corresponding entries in the first row. Thus the first row is dominated by the third row and as such can be deleted. The deletion of the first row leads to the following matrix.

	B_1	B_2	B_3	B_4
A_2	3	4	2	4
A_3	4	2	4	0
A_4	0	4	0	8

Next, all elements of the first column are at least equal to their counterparts in the third column. We can, thus, delete the first column to get the following matrix:

	B_2	B_3	B_4
A_2	4	2	4
A_3	2	4	0
A_4	4	0	8

We notice now that the first column is dominated by a convex linear combination of the second and the third columns because

$$4 > \frac{1}{2}(2) + \frac{1}{2}(4);\quad 2 = \frac{1}{2}(4) + \frac{1}{2}(0);\ \text{and}\ 4 = \frac{1}{2}(0) + \frac{1}{2}(8)$$

Its deletion results in the following:

	B_3	B_4
A_2	2	4
A_3	4	0
A_4	0	8

Similarly, the first row is equated to the convex linear combination of the other two rows as shown.

$$2 = \frac{1}{2}(4) + \frac{1}{2}(o);\ \text{and}\ 4 = \frac{1}{2}(0) + \frac{1}{2}(8)$$

Hence, we deleted the first row to get the following 2 x 2 matrix which can be solved analytically.

	B_3	B_4
A_3	4	0
A_4	0	8

For this game,

$$x = \frac{8-0}{(4+8)-(0+0)} = \frac{8}{12} = \frac{2}{3};\quad y = \frac{8-0}{(4+8)-(0+0)} = \frac{8}{12} = \frac{2}{3};\ \text{and}\ v = \frac{4\times 8 - 0\times 0}{(4+8)-(0+0)} = \frac{32}{12} = \frac{8}{3}.$$

Thus, the optimal strategy for A is (0, 0, 2/3, 1/3), for B it is (0, 0, 2/3, 1/3) and the game value v = 8/3.

(b) Economic Value Added (EVA)

= NOPAT (Net Operating Profit after Tax) – Capital Cost

= NOPAT – [WACC (Weighted Average Cost of Capital) x Capital Employed]

Working Note – 1:

Calculation of NOPAT	(₹)
Profit before tax	6,00,000
+ Interest Expense	1,20,000
- Non operating income	20,000
Operating EBIT	7,00,000
Less economic taxes @ 40%	2,80,000
NOPAT	4,20,000

Working Note – 2:

Capital Employed	(₹)
Equity Share capital	10,00,000
Reserve and surplus	12,00,000
13% preference share capital	4,00,000
20% debenture	6,00,000
Total	32,00,000
Less non operating assets	2,00,000
Capital Employed	30,00,000

EVA = ₹ 4,20,000 – (₹ 30,00,000 x 13%) = ₹ 4,20,000 – ₹ 3,90,000 = ₹ 30,000.

4. (a) Define the following terms in the context of supply chain Management:

(i) Capacity strategy;

(ii) Lead Time/Cycle Time;

(iii) Preventative Maintenance;

(iv) Specifications.

(b) Mention the steps involved in 'Data Mining Problems' **[8+ 8 = 16]**

Answer

(a)

(i) Capacity Strategy:

This is one of the strategic choices that a firm must make as part of its manufacturing strategy. There are three commonly recognized capacity strategies: lead, lag, and tracking. A lead capacity strategy adds capacity in anticipation of increasing demand. A lag strategy does not add capacity until the firm is operating at or beyond full capacity. A tracking strategy adds capacity in small amounts to attempt to respond to changing demand in the marketplace.

(ii) Lead Time/Cycle Time:

1) A span of time required to perform a process (or series of operations). 2) In a logistics context, the time between recognition of the need for an order and the receipt of goods. Individual components of lead time can include order preparation time, queue time, processing time, move or transportation time, and receiving and inspection time.

(iii) Preventive Maintenance

The activities, including adjustments, replacements, and basic cleanliness, that forestall machine breakdowns. The purpose is to ensure that production quality is maintained and that delivery schedules are met. In addition, a machine that is well cared for will last longer and cause fewer problems.

(iv) Specifications

Specifications are the most detailed method of describing requirements. Various types of design specifications are the detailed descriptions of the materials, parts, and components to be used in making a product. Hence, they are the descriptions that tell the seller exactly what the buyer wants to purchase.

(b) The steps in Data mining process may be enumerated as follows:

1. **State the problem and formulate the hypothesis:**
   Most data-based modeling studies are performed in a particular application domain. Hence, domain specific knowledge and experience are usually necessary in order to come up with a meaningful problem statement. Unfortunately, many application studies tend to focus on the data-mining technique at the expense of a clear problem statement. In this step, a modeler usually specifies a set of variables for the unknown dependency and, if possible, a general form of this dependency as an initial hypothesis. There may be several hypotheses formulated for a single problem at this stage. The first step requires a close interaction between the data-mining expert and the application expert which continues during the entire data-mining process.

2. **Collect the data:**
   This step is concerned with collection of data from the existing databases. There are two distinct possibilities — the first is when the data-generation process is under the control of an expert (modeler) which is known as a designed experiment. The second possibility is when the expert cannot influence the data-generation process which is known as the observational approach. An observational setting, namely, random data generation, is assumed in most data-mining applications. Typically, the sampling distribution is completely unknown after data are collected, or it is partially and implicitly given in the data-collection procedure. It is very important to understand how data collection affects its theoretical distribution, since such a priori knowledge can be very useful for modeling and, later, for the final interpretation of results.

3. **Preprocessing the data:**
   In the observational setting, data are usually "collected" from the existing databases, data warehouses, and data marts. Data preprocessing usually includes at least two common tasks:
   (i) Outlier detection and
   (Outliers are unusual data values that are not consistent with most observations. Commonly, outliers result from measurement errors, coding and recording errors, and, sometimes, are natural, abnormal values.)
   (ii) Scaling, encoding, and selecting features

4. **Estimate the model:**
   The selection and implementation of the appropriate data-mining technique is the main task in this phase. This process is not straightforward; usually, in practice, the implementation is based on several models, and selecting the best one is an additional task.

5. **Interpret the model and draw conclusions:**
   In most cases, data-mining models should help in decision making. Hence, such models need to be interpretable in order to be useful because humans are not likely to base their decisions on complex "black-box" models. Note that the goals of accuracy of the model and accuracy of its interpretation are somewhat contradictory. Usually, simple models are more interpretable, but they are also less accurate. Modern data-mining methods are expected to yield highly accurate results using high dimensional models. The problem of interpreting these models, also very important, is considered a separate task, with specific techniques to validate the results.

5. (a) Discuss about risk retention and state its guidelines to be followed for it.
(b) Mention the Performance related measures in the context of Corporate Risk Management. [8+ 8 = 16]

Answer

(a) Risk Retention

This denotes acceptance of the loss or benefit arising out of a risk when it takes place. In short, it is also termed as self insurance. This strategy is viable when the risks are small enough to be transferred at a cost that may be higher than the loss arising out of the risk itself. On the other hand, the risk can be so big that it cannot be transferred or insured. Such risks will have to be phased out when the eventuality occurs. War is an example as also are 'Acts of God' such as earthquakes and floods.

The reasons for risk retention can be cited as follows:

(i) While risk in a business is taken to increase its return, risk retention relates to such risks which have no relation to return but are part of an individual's life or organization or a company operational risk can be cited as such a risk that is inherent and needs to be accepted for retention.
(ii) Sometimes, such risks are so small that they are ignored and/or phased out when they surface.
(iii) This method is also useful when the probability of occurrence is very low and a reserve built within the system over a period can take care of such losses arising out of risk retention. This is normally resorted to in businesses against credit risks that are inherent due to marketing on credit basis.
(iv) In some cases, the subject, who is susceptible to risk, also becomes fully aware of the nature of risk. In these situations, there is a certain amount of preparedness in the

system due to risk retention.

Certain **guidelines** relating to risk retention should be followed, as per below:

(a) Determine the risk retention level through proper estimation of risk using sales projections, cash flows, contracts, liquidated damages, and guarantees.
(b) Though there is no precise formula for estimation of risks to be retained, statistical averages of such losses over a period of time give an indication to estimate such losses. For instance, bad debts occurring over a period of time are taken into consideration as an estimate to create a reserve for doubtful debts.
(c) It is also necessary to ascertain the capacity for funding a loss arising out of retained risk that is the measure for transferring the risk beyond that level. Risk retention as an exercise and a strategy is attempted mainly in the case of operational risk in business.

(b) Performance - related measures in the context of Corporate Risk Management are those which concentrate on the mid-region of the probability distribution, i.e., the region near the 'mean' and are relevant for determination of the volatility around expected results. The following are some of the Performance - related measures in the context of Corporate Risk Management.

(i) Return on Equity - Net Income divided by Net Worth.

(ii) Operating Earnings - Net Income from continuing operations, excluding realized investment gains.

(iii) Earnings before Interest - Dividends, Taxes, Depreciation and Amortization (EBITDA).A form of cash flow measure for evaluating the operating performance of companies with high levels of debt.

(iv) Cash Flow Return on Investment (CFROI) - EBITDA divided by tangible assets.

(v) Weighted Average Cost of Capital (WACC) - The sum of the required market returns of each component of corporate capitalization, weighted by that component's share of the total capitalization.

(vi) Economic Value Added (EVA) - A corporate performance measure that stresses the ability to achieve above the firm's cost of capital.

6. Hp Ltd manufactures two parts 'A' and 'B for computer Industry.

- **A: Annual production and sales of 1,00,000 units at a selling price of ₹ 1000.05 per unit.**
- **B: Annual production and sales of 50,000 units at a selling price of ₹ 150 per unit.**

Direct and Indirect costs incurred on these two parts are as follows – (₹ In thousands)

Particulars	A	B	Total
Direct Material cost (Variable)	**4,200**	**3,000**	**7,200**
Labour cost (Variable)	**1,500**	**1,000**	**2,500**
Direct Machining costs (See note)	**700**	**550**	**1,250**

Indirect Costs:			
Machine set up cost			**462**
Testing Cost			**2,375**
Engineering cost			**2,250**
Total			**16,037**

Note: Direct Machining costs represent the cost of machine capacity dedicated to the production of each product. These costs are fixed and are not expected to vary over the long-run horizon.

Additional information is as follows –

Particular	A	B
Production Batch Size	**1,000 units**	**500 units**
Set up time per batch	**30 hours**	**36 hours**
Testing time per unit	**5 hours**	**9 hours**
Engineering cost incurred on ech product	**₹ 8,40,000**	**₹ 14,10,000**

A foreign competitor has introduced product very similar to 'A' to maintain the company's share and profit, HP Ltd. has to reduce the price to ₹ 86.25. The company calls for a meeting and comes up with a proposal to change design of product 'A'. The expected effect of new design is as follows:

- **Direct Material cost is expected to decrease by ₹ 5 per unit.**
- **Labour cost is expected to decrease by ₹ 2 per unit.**
- **Machine time is expected to decrease by 15 minutes, previously it took 3 hours to produce 1 unit of 'A'. The machine will be dedicated to the production of new design.**
- **Set up time will be 28 hours for each set up.**
- **Time required for testing each unit will be reduced by 1 hour.**
- **Engineering cost and batch size will be unchanged.**

Required:

(i) Company management identifies that cost driver for machine set-up costs is set up hours used in batch setting and for testing costs is 'testing time' Engineering costs are assigned to products by special study. Calculate the full cost per unit for 'A' and 'B using Activity- based costing.

(ii) What is the Mark-up on full cost per unit of A?

(iii) What is the target cost per unit for new design to maintain the same mark up percentage on full cost per unit as it had earlier? Assume cost per unit of cost divers for the new design remains unchanged.

(iv) Will the new design achieve the cost reduction target?

(v) List four possible management actions that the HP Ltd. should take regarding new design. [16]

Answer

(i) Computation of Quantities of Cost Drivers

Particulars	A	B	Total
A. Quantity	1,00,000 units	50,000 units	
B. Batch Size	1,000 units	500 units	
C. Number of Batches (A ÷ B)	100 batches	100 batches	
D. Set Up Time per batch	30 hours	36 hours	
E. Total Set Up Time for Production (C × D)	3,000 hours	3,600 hours	6,600 hours
F. Testing Time per unit	5 hours	9 hours	
G. Total Testing Time for Production (A × F	5,00,000 hours	4,50,000 hours	9,50,000 hours

Computation of ABC Recovery Rates

Activity	Activity Cost Pool	Cost Driver	Cost Driver Quantity	ABC Rate
Machine Set Up Testing	₹ 4,62,000 ₹23,75,000	Set Up Hours Testing Hours	6,600 Set Up Hours 9,50,000 Testing Hours	₹70 per hour. ₹2.50 per hour.

Note: Engineering Costs are assigned by special study. Hence ABC Rate is not calculated.

Computation of Cost per unit using ABC System

Particulars	A	B
Direct Costs:		
Direct Materials	42,00,000 ÷1,00,000 = 42.00	30,00,000 ÷ 50,000 = 60.00
Direct Labour	15,00,000 ÷1,00,000 = 15.00	10,00,000 ÷ 50,000 = 20.00
Direct Machining	7,00,000 ÷1,00,000 = 7.00	5,50,000 ÷ 50,000 = 11.00
Sub Total Direct Costs	64.00	91.00
Indirect Costs:		
Machine Set Up	(₹70 x 30 hrs) ÷1,000 uts = 2.10	(₹70 x 36 hrs) ÷ 500 uts = 5.04
Testing	(₹2.5 ph x 5 hours) = 12.50	(₹2.5 ph x 9 hours) = 22.50
Engineering	8,40,000÷1,00,000 = 8.40	14,10,000÷50,000 = 28.20
Sub Total Indirect Costs	23.00	55.74
Total Costs	87.00	146.74

(ii) Markup (or) Profit per unit of A = Selling Price - Full Cost = ₹ 100.05 - ₹87.00 = ₹13.05 p.u.
Percentage of Markup to Full Cost = ₹13.05 ÷ ₹87 = 15% on Cost.

(iii) Computation of Target cost for New Design of A

New Selling Price (given)	₹86.25
Less: Target Profit at 15% on Cost i.e. 15/115 on SP = 86.25 x 15/115	₹11.25
Target Cost for New Design of A	₹75.00

(iv) Computation of Cost per unit of New Design A

Particulars	A
Direct Costs: Direct Materials	42.00-5.00 = 37.00
Direct Labour	15.00-2.00 =13.00
Direct Machining (dedicated machine, hence time saved is not relevant, as the costs continue to be fixed)	7,00,000 ÷ 1,00,000 = 7.00
Sub Total Direct Costs	57.00
Indirect Costs: Machine Set Up (₹70 x 28 hours) ÷1,000 units	1.96

Testing	(₹2.5 ph x 4 hours)	10.00
Engineering	8,40,000 ÷ 1,00,000 units	8.40
Sub Total Indirect Costs		20.36
Total Estimated Costs of New Design A		77.36

Target Cost is ₹75.00 only. Hence, the new design will not achieve the cost reduction target.
Note: It is assumed that output of A will remain at 1,00,000 units, in spite of the reduction in machine time. To maintain 15% profit margin, probable SP of New Design A will be ₹77.36 + 15% = ₹88.96.

(v) Possible management actions for new design

(i) Value Engineering and Value Analysis to reduce the Direct Material Costs.
(ii) Time and Motion Study in order to redefine the Direct Labour time and related costs.
(iii) Exploring possibility of cost reduction in costs of Direct Machining.
(iv) Identifying non-value added activities and eliminating them in order to reduce Overheads.
(v) Analysis of effect of sale of New Design A on sale of B.
(vi) Analyses of sensitivity of sale quantity of New Design A to price change from ₹86.25 to ₹88.96.

7. (a) Karishma Ltd., manufacturing electronic equipments, is currently buying component A from a local supplier at a cost of ₹30 each. The company has under its consideration a proposal to install a machine for the manufacture of the component.

Two alternative proposals are available as under:

- **Installation of Semi-automatic machine, involving an annual fixed cost of ₹18 lakhs and a variable cost of ₹12 per component manufactured.**
- **Installation of an automatic machine, involving an annual fixed cost of ₹30 lakhs and a variable cost of ₹10 per component manufactured.**

As a Cost and Management Accountant, you are required to find out:

(i) The annual requirement of the component to justify a switch over from purchase of components to
  (a) manufacture of the same by installing semi-automatic machine and
  (b) manufacture of the same by installing an automatic machine.

(ii) If the annual requirement of the component is 5,00,000 units, which machine would you advice the company to install?

(b) Compare between dashboard and scorecard. [10 + 6 = 16]

Answer

(a)

	Semi-Automatic Machine (₹)	Automatic machine(₹)
i. Purchase price of the component	30	30
Variable cost	12	10

	Saving	18	20
	Fixed Costs	18,00,000	30,00,000
	Components required to be produced to Justify	18,00,000 ÷ 18	30,00,000 ÷ 20
	The installation of the machine	= 1,00,000	= 1,50,000
ii.	If the annual requirement is 5,00,000 units:		
	Variable costs	60,00,000	50,00,000
	Fixed costs	18,00,000	30,00,000
	Total costs	78,00,000	80,00,000

Recommendation: Install semi-automatic machine, since it costs less.

(b) Comparison between Scorecard and Dashboard

The two terms - scorecards and dashboards - have a tendency to confuse, or rather get used interchangeably, but each brings a different set of capabilities.

The sources of the confusion are: Both represent a way to track results.

- Both use traffic lights, dials, sliders and other visual aids
- Both have targets, thresholds and alert messages
- Both provide linkage or drill down to other metrics and reports.
- The difference comes from the context in how they are applied.

To provide some history, as busy executives and managers struggled to keep up with the amount of information being thrust at them, the concept of traffic lighting were applied to virtually any and all types of reporting. As technology has improved, more bells and whistles were added - the ability to link to other reports and to drill down to finer levels of detail. The common denominator was the speed of being able to focus on something that required action or further investigation. The terminology evolved to reflect how technology vendors described the widgets that provided this capability - dashboards. As a consequence, both dashboard and scorecard terms are being used interchangeably. Some refer to dashboards as "dumb" reporting and scorecards as "intelligent" reporting. The reason is dashboards are primarily for data visualization; they display what is happening during a time period. Most organizations begin with identifying what they are already measuring and construct a dashboard dial from there. However, dashboards do not communicate why something matters, why someone should care about the reported measure or what the impact may be if an undesirable declining measure continues. In short, dashboards report what you can measure.

8. Answer any four questions: [4 × 4 = 16]

(a) Discuss the steps in risk management process

Answer

Risk Management Process

Risk management process refers to the process of measuring or assessing risk and then developing strategies to manage risk. In the risk management, the following steps are taken up to minimize the risk:

Step 1: Risk Identification and Assessment
This step involves event identification and data collection process. The institution has to put in place a system of capturing information either through key risk drivers (KRIs) or through a rating system. Once risks are identified, combine like risks according to the following key areas impacted by the risks — people, mission, physical assets, financial assets, and customer/stakeholder trust.

Step 2: Risk Quantification and Measurement
The next step is to Quantify and Measure risks-this means Rate risks according to probability and impact. Various standard tools are used by financial institutions to measure risk and understand their impact in terms of capital or its importance to the organization through a scoring technique.

Step 3: Risk Analysis, Monitor and Reporting
The next step is risk analysis, monitoring and reporting. This will help one to get the big picture and decided on the approach to risk management.

Step 4: Capital Allocation
Risk Analysis, Monitoring & Reporting sends information to the top management of the organization to take strategic decisions. Capital allocation plays key role in management decision making.

Step 5: Risk Management and Mitigation
After the above step, the last step is to make strategic decisions to manage the risk in order to mitigate the risk.

(b) State the principles of Lean Management;

Answer

Principles of Lean

The five-step thought process for guiding the implementation of lean techniques is easy to remember, but not always easy to achieve:

1. Specify value from the standpoint of the end customer by product family.
2. Identify all the steps in the value stream for each product family, eliminating whenever possible those steps that do not create value.
3. Make the value-creating steps occur in tight sequence so the product will flow smoothly toward the customer.
4. As flow is introduced, let customers pull value from the next upstream activity.
5. As value is specified, value streams are identified, wasted steps are removed, and flow and pull are introduced, begin the process again and continue it until a state of perfection is reached in which perfect value is created with no waste.

(c) Objectives of transfer pricing;

Answer

A transfer price is that notional value at which goods and services are transferred between divisions in a decentralized organization. Transfer prices are normally set for intermediate products which are goods and services that are supplied by the selling division to the buying division.

Objectives:

- Ensure that resources are allocated in an optimal manner.
- Promote goal congruence.
- Motivate divisional managers.
- Facilitate the assessment of management performance.
- Retain divisional autonomy.

(d) Write a note on Unique competitor risk;

Answer

Unique Competitor Risk

The unorganized sector has been the main sufferer from this type of risk in the retail sector. In a similar manner, small and medium enterprises have also been affected by big players entering the scene. Unique competitor risk can be mitigated by ingenious and innovative ideas of developing self-help groups, organizing the unorganized sector, and by providing micro finance to small entrepreneurs.

The Bangladesh experiment of Grameen Bank has been a success story and this experiment is being replicated to empower the unorganized sector. Small and medium enterprises are also being helped by the Government under special schemes by the banking industry, by providing them with adequate credits such as export credits in the case of Tirupur hosiery industry.

In a market-operated world economy affecting both developed and developing countries, the entry of unique competitors cannot be prevented. For example, such competitors may-source products from indigenous sources including small and unorganized sectors and meet with significant success. The farmers who cultivate vegetables are encouraged to market directly to the consumer or to the competitor so that they are assured of substantial off takes at reasonable prices. Support prices from the Government for agriculture commodities such as paddy, wheat, sugarcane, and cotton has also helped mitigate the effect of the entry of a competitor. This approach again follows the principles of risk retention and mitigation.

(e) Discuss about Five fundamental Data Quality Practices.

Answer

Five Fundamental Data Quality Practices

Data quality management incorporates a "virtuous cycle" in which continuous analysis, observation, and improvement lead to overall improvement in the quality of organizational information across the board. The results of each iteration can improve the value of an organization's data asset and the ways that data asset supports the achievement of business objectives.

This cycle turns on the execution of five fundamental data quality management practices, which are ultimately implemented using a combination of core data services. Those practices are:

- Data quality assessment
- Data quality measurement
- Integrating data quality into the application infrastructure
- Operational data quality improvement
- Data quality incident management

By enabling repeatable processes for managing the observance of data quality expectations, these practices provide a solid foundation for enterprise data quality management. This paper describes these practices and then looks at the core data services upon which these practices rely. Each section will provide an overview of the practice and review processes that are used to achieve the desired practice's objectives. By combining good data management practices with the right technology platform, an organization can fully incorporate data quality into the enterprise architecture.

Data quality management practices can improve the value of an organization's data asset and the ways it supports the achievement of business objectives.