MEPL CLASSES

CMA FINAL - PAPER – 16

STRATEGIC COST MANAGEMENT

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Time Allowed: 3 Hours **Full Marks: 100**

The figures in the margin on the right side indicate full marks.

SECTION – A (Compulsory)

1. Choose the correct option: **[15 x 2=30]**

(i) A company has forecast sales and cost of goods sold for the coming year as ₹25 lakhs and ₹18 lakhs respectively. The inventory turnover has been taken as 9 times per year. In case the inventory turnover increases to 12 times and the short-term interest rate on working capital is taken as 10%, what will be the saving in cost?

a) ₹10,000
b) ₹20,000
c) ₹15,000
d) ₹5,000

(ii) The break-even point of a manufacturing company is ₹1,60,000. Fixed cost is ₹48,000. Variable cost is ₹12 per unit. The PV ratio will be:

a) 20%
b) 40%
c) 30%
d) 25%

(iii) The higher the actual hours worked:

a) The lower the capacity usage ratio
b) The higher the capacity usage ratio
c) The lower the capacity utilization ratio
d) The higher the capacity utilization ratio

(iv) Ankit Ltd., operates throughput accounting system. The details of product A per unit are as under: Selling Price: ₹75

Material Cost: ₹30

Conversion Cost:₹ 20

Time to bottleneck resources: 10 minutes

What is the throughput contribution per bottleneck resource per hour?

a) ₹270
b) ₹150
c) ₹120
d) ₹90

(v) Which of the following is not a primary activity of Value Chain?

a) Inbound Logistics
b) Operations
c) Services
d) Infrastructure

(vi) Kanban Japanese System under JIT approach ensures that

a) Continuous supply of inventory or product
b) Minimum and Maximum level of stock to be maintained
c) Inventory valuation
d) All of the above

(vii) Aderholt uses activity-based costing to allocate its overheads. The budgeted cost expected for the Supervisor cost pool was:
Budgeted units: 5,000
Number of employees: 75
Budgeted Cost: ₹7,500
The actual costs incurred were:
Actual Units: 5,500
Actual Employees: 77
Actual cost: ₹8,085
What was the total variance for the pool?

a) ₹585 Adverse
b) ₹165 Favourable
c) ₹555 Favourable
d) ₹385 Adverse

(viii) Pareto analysis recognizes:

a) 80:20 Rule
b) 50:50 Rule
c) 20:80 Rule
d) None of the above

(ix) Cost of Rework is a cost related to:

a) Internal failure
b) Appraisal
c) Prevention
d) None of the above

(x) Which of the following is not a term normally used in value analysis?

a) Resale value
b) Use value
c) Esteem value
d) Cost value

(xi) The Objective Function of a LPP is $Z = 3x_1 + 2x_2$. If $x_1 = 10$ and $x_2 = 5$ then the value of Z is –

a) 35
b) 40
c) 45
d) 50

(xii) When the total allocation of a Transportation Problem match with supply and demand values, the solution is –

a) Non- degenerate
b) Feasible
c) Degenerate
d) None of the above

(xiii) Which of the following considers difference between least cost and the cost just before least for each row and column while finding Basic Feasible Solution in Transportation?

a) North West Corner Method
b) Least Cost Method
c) Vogel's Approximation Method
d) Both (b) and (c) above

(xiv) Script Ends – is related to which type of programming language?

a) R Programming
b) SAS
c) Python
d) SPSS

(xv) Which of the following is related to Financial Data Analytics?

a) Value driver analytics
b) Financial ratio analytics
c) Predictive sales analysis
d) All of the above

SECTION – B

(Answer any 5 questions out of 7 questions given. Each question carries 14 marks.)

[5 x 14 = 70]

2. A review, made by the top management of Sweat and Struggle Ltd. which makes only one product, of the result of the first quarter of the year revealed the following:

Sales in units	10,000
Loss	₹ 10,000
Fixed cost (for the year ₹1,20,000)	₹ 30,000
Variable cost per unit	₹8.00

The Finance Manager who feels perturbed suggests that the company should at least break-even in the second quarter with a drive for increased sales. Towards this, the company should introduce better packing which will increase the cost by ₹0.50 per unit.

The Sales Manager has an alternative proposal. For the second quarter additional sales promotion expenses can be increased to the extent of ₹5,000 and a profit of ₹5,000 can be aimed at during the period with increased sales.

The Production Manager feels otherwise. To improve the demand, the selling price per unit has to be reduced by 3%. As a result, the sales volume can be increased to attain a profit level of ₹4,000 for the quarter.

The Manager Director asks you as a Cost Accountant to evaluate the three proposals and calculate the additional sales volume that would be required in each case, in order to help him to take a decision. **[14]**

3. (a) XYZ Ltd which has a system of assessment of Divisional Performance on the basis of residual income has two Divisions, Alpha and Beta. Alpha has annual capacity to manufacture 15,00,000 numbers of a special component that it sells to outside customers, but has idle capacity. The budgeted residual income of Beta is ₹1,20,00,000 while that of Alpha is ₹1,00,00,000.

Other relevant details extracted from the budget of Alpha for the current year were as follows

Particulars	
Sale (outside customers)	12,00,000 units @ ₹180 per unit
Variable cost per unit	₹160
Divisional fixed cost	₹80,00,000
Capital employed	₹7,50,00,000
Cost of Capital	12%

Beta has just received a special order for which it requires components similar to the ones made by Alpha. Fully aware of the idle capacity of Alpha, beta has asked Alpha to quote for manufacture and supply of 3,00,000 numbers of the components with a slight modification during final processing. Alpha and Beta agree that this will involve an extra variable cost of ₹5 per unit. Calculate the transfer price which Alpha should quote to Beta

to achieve its budgeted residual income. **[7]**

(b) A2Z plc. supports the concept of tero technology or life cycle costing for new investment decisions covering its engineering activities. The financial side of this philosophy is now well established, and its principles extended to all other areas of decision making. The company is to replace a number of its machines and the Production Manager is torn between the Exe Machine, a more expensive machine with a life of 12 years, and the Wye machine with an estimated life of 6 years. If the Wye machine is chosen it is likely that it would be replaced at the end of 6 years by another Wye machine. The pattern of maintenance and running costs differs between the two types of machine and relevant data are shown below:

Particulars	Exe (₹)	Wye (₹)
Purchase Price	19,000	13,000
Trade-in value/breakup/scrap	3,000	3,000
Annual repair costs	2,000	2,600
Overhaul costs	(at year 8) 4,000	(at year 4) 2,000

Estimated financing costs averaged over machine life 10% p.a.- Exe; 10% p.a. – Wye.

You are required to: recommend with supporting figures, which machine to purchase, stating any assumptions made**.** **[7]**

4. (a) H Ltd. manufactures three products. The material cost, selling price and bottleneck resource details per unit are as follows:

Particulars	Product X	Product Y	Product Z
Selling Price (₹)	66	75	90
Material and other variable cost (₹)	24	30	40
Bottleneck resource timeline (minutes)	15	15	20

Budgeted factory costs for the period are ₹2,21,600. The bottleneck resources time available is 75,120 minutes per period.

Required:

(i) Company adopted throughput accounting and products are ranked according to 'product return per minute'. Select the highest rank product.

(ii) Calculate throughput accounting ratio (TA Ratio) and comment on it. **[7]**

(b) Discuss the significance of lean accounting. **[7]**

5. The summarized results of a company for the two years ended 31st December 2022 and 2023 are given below: -

Year	2023	2022
Particulars	₹ lacs	₹ lacs
Sales	770	600
Direct Materials	324	300
Direct Wages	137	120
Variable Overheads	69	60
Fixed Overheads	150	80
Profit	90	40

As a result of re-organisation of production methods and extensive advertisement campaign use, the company was able to secure an increase in the selling prices by 10% during the year 2023 as compared to the previous year. In the year 2022, the company consumed 1,20,000 Kgs. of raw materials and used 24,00,000 hours of direct labour. In the year 2023, the corresponding figures were 1,35,000 kgs of raw materials and 26,00,000 hours of direct labour.

You are required to:
Use information given for the year 2022 as the base year information to analyse the results of the year 2023 and to show in a form suitable to the management the amount each factor has contributed by way of price, usage and volume to the change in profit in 2023.

[14]

6. **(a)** An equipment under breakdown has five repair jobs to make it operative again. The Maintenance Manager of the organisation has assigned five mechanics of his department to do the jobs. The estimated time (hours) for each of the mechanics to carry out the jobs are given in the following table:

	Time required (Hours) to complete the Repair jobs				
Mechanic	A	B	C	D	E
I	7	5	9	8	11
II	9	12	7	11	10
III	8	5	4	6	9
IV	7	3	6	9	5
V	4	6	7	5	11

Assuming that each mechanic can be assigned to only one job, determine the minimum time assignment. **[7]**

(b) Patients arriving at a village dispensary are treated by a doctor on a first-come-first-served basis. The inter-arrival time of the patients is known to be uniformly distributed between 0 and 80 minutes, while their service time is known to be uniformly distributed between 15 and 40 minutes. It is desired to simulate the system and determine the average time a patient has to be in the queue for getting service and the proportion of time the doctor would be idle.

Carry out the simulation using the following sequences of random numbers. The numbers have been selected between 00 and 80 to estimate inter-arrival times and between 15 and 40 to estimate the service times required by the patients.

Series 1	07	21	12	80	08	03	32	65	43	74
Series 2	23	37	16	28	30	18	25	34	19	21

[7]

7. The following table gives data on normal time & cost as well as crash time & cost for a project. You need to draw the Network diagram and identify the Critical Path.
Also find out the Normal duration of the project and the corresponding Total Cost associated with it.
Crash the relevant activities systematically and determine the optimum completion time of the project. Also determine the corresponding cost when it is given that the Indirect Cost is ₹100 per day.

Activity	Normal		Crash	
	Time (days)	Cost (₹)	Time (days)	Cost (₹)
1—2	6	600	4	1,000
1—3	4	600	2	2,000
2—4	5	500	3	1,500
2—5	3	450	1	650
3—4	6	900	4	2,000
4—6	8	800	4	3,000
5—6	4	400	2	1,000
6—7	3	450	2	800

[14]

8. **(a)** Joy Givers and Milan Toys are the two toy manufacturers who always compete with each other to increase their respective market shares. For both the companies the Marketing team work with close coordination with the Design team and always come out with attractive toys which are normally in great demand. To meet the demand, they have various strategic options like working for 8 hours a day, 12 hours a day, 16 hours a day, 24 hours a day, subcontracting etc. which will ultimately increase the market share. Joy Givers have decided not to go for all the above mentioned options and set up the following payoff matrix in which the percentage increase in market share is given against different strategies of Milan Toys

STRATEGIES of	Milan Toys			
Joy Givers	Working 8 hrs/day	Working 12 hrs/day	Working 16 hrs/day	Subcontracting
Working 12 hrs/day	8	10	9	14
Working 16 hrs/day	10	11	8	12
Working 24 hrs/day	13	12	14	13

Use Principle of Dominance to find the Optimal Strategies of the two manufacturers and the value of the Game. **[7]**

(b) Calculate the Seasonal Indices for the following quarterly data in certain units. Appropriate method for finding the Indices has to be decided by you with due explanation

Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
2020	39	21	52	81
2021	45	23	63	76
2022	44	26	69	75
2023	53	23	64	84

[7]