Paper – 10: Cost & Management Accountancy

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

QUESTION 1, which is compulsory. Attempt all of them.
Section-A has three questions. Attempt any two of them.
Section-B has two questions. Attempt any one of them.
Section-C has three questions. Attempt any two of them.
(Working Notes should form part of the answer.)

Question.1

(a) A Company Operates throughput accounting system. The details of product A per unit are as under:

Selling price	**₹40**
Material Cost	**₹10**
Conversion Cost	**₹15**
Time on Bottleneck resources	**10 minutes**

What will be the return per hour for product A? [2]

Answer:

Return per hour Product A = (Selling price – Material cost)/Time on bottleneck resource
= [(₹40 - ₹10) /10 Minutes] × 60
= ₹ 180 per hour

(b) The budgeted fixed overhead for a budgeted production of 20,000 units is ₹ 40,000. For a certain period, the actual production was 21,000 units and the actual expenditure came to ₹ 34,000. Calculate the Volume Variance. [2]

Answer:

Budgeted fixed overheard	₹ 40,000
Budgeted production	20,000 units
Actual production	21,000 units
Actual expenditure	₹ 34,000

Volume Variance=SR (AQ - BQ)= (BFO /BQ) × (AQ - BQ)
= (40,000 /20,000) × (21,000 - 20,000)
=2 × 1,000
=2,000 (F)

(c) A television Company manufactures several component in batches.
The following data relate to one component:

Annual demand	**32,000 units**
Set up cost/batch	**₹120**
Annual rate of interest	**12%**
Cost of production per unit	**₹16**

Calculate the Economic Batch Quantity (EBQ). [2]

Answer:

$$E.B.Q = \sqrt{\frac{2AS}{C}}$$

Where, A= Annual demand,
S=Set up cost per batch,

C=Carrying cost per unit per year,

E.B.Q= $\sqrt{\frac{2\times 32,000\times 120}{16\times 0.12}}$

=2,000 units

(d) What is Sunk Cost? [2]

Answer:

Sunk costs are historical costs which are incurred i.e sunk in the past and are not relevant to the particular decision making problem being considered. Sunk costs are those that have been incurred for a project and which will not be recovered if the project is terminated. While considering the replacement of plant, the depreciated book value of the old asset is irrelevant as the amount is sunk cost which is to be written-off at the time of replacement.

(e) Depreciation charged in costing books is ₹ 12,500 and in financial books is ₹ 11,200. What will be the financial profit when costing profit is ₹ 5,000? [2]

Answer:

Financial Profit

=Costing Profit + (Depreciation Charged in costing book – Depreciation Charged in Financial book)

= 5,000 + (12,500 – 11,200)

= 6,300

(f) How will you treat Cenvat availed as credit on purchased raw materials in the Cost Accounting Records ? [2]

Answer:

Cenvat credit to be deducted from the cost of raw materials, and only the net value should be taken in the priced stores ledger, which forms the basis for pricing materials issues to cost centres.

(g) Are there any sectors exempted under Companies (Cost Accounting Records) Rules 2011? [2]

Answer.

MCA General Circular No. 67/2011 dated 30th November 2011, states that the Companies (Cost Accounting Records) Rules, 2011 are not applicable to wholesale & retail trading, banking, financial, leasing, investment, insurance, education, healthcare, tourism, travel, hospitality, recreation, transport services, business/professional consultancy, IT & IT enabled services, research & development, postal/courier services, etc. unless any of these have been specifically covered under any other Cost Accounting Records Rules.

(h) Find the Elasticity of Demand for

P = $\frac{10}{x+2^{2}}$ **[3]**

Answer:

$P = \frac{10}{(x+2)^2} = 10\,(x+2)^{-2}$

Differentiating w.r.to x

$dp/dx = 10(-2)(x+2)^{-3} = -20\,(x+2)^{-3}$

$$\frac{P}{x} = \frac{10}{x(x+2)^2}$$

Elasticity of demand (E_p) =

$$\frac{dx}{dp} \div \frac{x}{p} = -\left|\frac{dx}{dp} \times \frac{p}{x}\right|$$

$$\frac{dx}{dp} = \frac{1}{-20(x+2)^{-3}} = \frac{(x+2)^3}{-20}$$

$$\frac{dx}{dp} \times \frac{p}{x} = \frac{(x+2)^3}{-20} \times \frac{10}{x(x+2)^2} = \frac{-(x+2)}{2x}$$

(i) What are the types of elasticity of Demand? [3]

Answer:

Elasticity of demand is of 3 types:

(i) Price elasticity of demand

(ii) Income elasticity of Demand.

(iii) Cross elasticity of demand

Section A – Answer any two questions from this section

Question.2

(a) A company prepares a budget for a production of 1,00,000 units. Variable cost per units is ₹ 15 and the fixed cost is ₹ 2 per unit. The company fixes its selling price to fetch a profit of 10% on cost.

(i) What is the break- even point? (both in units and ₹)

(ii) What is profit volume ratio?

(iii) If it reduces its selling price by 5%, how does the revised selling price affect the break- even point and profit volume ratio?

(iv) If a profit increase of 10% is desired more than the budget, what should be the sales at the reduced price? [4+1+3+2=10]

Answer:

(i) Break Even Point in units = Fixed cost/Contribution per unit

= (₹ 2x 1,00,000 units)/3.70

$$= \frac{₹\ 2{,}00{,}000}{₹\ 3.70} = 54{,}054 \text{ units}$$

Break Even Point in rupees = Fixed Cost /P.V Ratio

= ₹2,00,000 /19.79%

=₹ 10,10,611

Note: Contribution per Unit

⇒ Selling price per unit = Total Cost + 10% profit on Cost

= ₹17 + 10% of 17

= ₹17.00 + ₹1.70

= ₹18.70

⇒ Contribution per unit = Selling Price – Variable cost

= ₹18.70 – 15.00

= ₹3.70

P.V Ratio= (Contribution per unit /Selling price in per unit) × 100

= (₹ 3.70 / ₹ 18.70) × 100

=19.79%

(ii) Profit volume ratio = $\frac{\text{Contribution per unit}}{\text{Selling price per unit}} \times 100$

$= \frac{3.70}{18.70} \times 100 = 19.79\%$

(iii) Reduction in selling price by 5%

Revised selling price = 18.7 – 5% of 18.7 = ₹18.70 – ₹0.94

= ₹17.76

Revised contribution = ₹17.76 – ₹15.00 = ₹2.76

Revised Break Even Point = $\frac{\text{Fixed Cost}}{\text{Contribution per unit}}$

$= \frac{2,00,000}{2.76} = 72,464$ units.

Revised P/V Ratio= Contribution/ Sales

=(₹ 2.76 /17.76)

=15.54%

(iv) Desired profit = 1.7 + 10% of 1.7 = 1.7 + 0.17 = ₹1.87

Total desired profit = ₹1.87 x 1,00,000 units = ₹1,87,000

Total desired contribution = Total fixed costs + Total profit = 2,00,000 + 1,87,000 = 3,87,000

Quantity to be sold = Total contribution / Revised contribution per unit = 3,87,000/2.76 = 1,40,217 units

Sales value = 1,40,217 units x ₹17.76 = ₹24,90,254

(b) Difference Between Activity Based Costing And Activity Based Management. [4]

Answer:

Activity Based Costing is logical distribution of overheads, i.e. overheads are distributed on the basis of the consumption of resources. It helps to avoid distortion of costs of products/services. On the other hand, Activity Based Management is a discipline that focuses on efficient management so as to value of services rendered to customers. This focus on activities is being used effectively for cost reduction, business process re-engineering, and benchmarking and performance measurement. Activity Based Management brings about a change in viewing at the objective by incorporation of financial perspective, internal business perspective, innovation and learning perspective.

(c) Define Throughput Accounting. What are the steps to be followed to increase the Throughput? [1+5=6]

Answer:

Throughput Accounting is defined as "A management accounting system which focuses on ways by which the maximum return per unit of bottleneck activity can be achieved"

Steps to be followed to increase the throughput:

The theory of constraints is applied within an organisation by following what are called 'the five focusing steps.' These are a tool that Goldratt developed to help organisations deal with constraints, otherwise known as bottlenecks, within the system as a whole (rather than any discrete unit within the organisation.)

The steps are as follows:

(i) Identify the bottle neck in the system i.e., identification of the limiting factor of the production (or) process such as installing capacity or hours etc.

(ii) Decide how to exploit the systems bottleneck that means bottleneck resource should be actively and effectively used as much as possible to produce as many goods as possible.

(iii) Subordinate everything else to the decision made in step (b). The production capacity of the bottleneck resource should determined production schedule.

(iv) Augment the capacity of the bottleneck resource with the minimum capital input.

(v) Identify the new bottlenecks in the process and repeat the same above steps to address the bottlenecks.

Question.3

(a) XYZ Ltd. produces article 'A' from a material which passes through namely M and N.

The details relating to a month are as under:

	Process M	Process N
Materials introduced (units)	**10,000**	
Transferred to next process (units)	**9,000**	
Work-in-process:		
At the beginning of the month (units)	**-------**	**600**
At the end of the month (units)	**1,000**	**400**
Expenses:		
Work-in-process at the beginning of the month	**-------**	**9,400**
Material introduced at the beginning of the process	**1,20,000**	**------**
Labour and Overheads	**27,600**	**18,200**

State of completion of work-in-process:

Process M: Closing WIP 20% complete in respect of labour and overheads.

Process N: Opening WIP 33 1/3% complete in respect of labour and overheads.

Closing WIP: 25% complete in respect of labour and overheads.

The finished output 'A' emerging out of process N is sold at ₹ 20 per unit.

Required:

Prepare Process Cost Accounts for Process M and N (Show the workings of equivalent units and cost per equivalent unit in each process). [3+3+2+2]

Answer:

Process Cost Accounts

STATEMENT OF EQUIVALENT UNITS (PROCESS M)

Input Units		Materials		Labour & Overheads	
		Units	**% completion**	**Units**	**% completion**
9,000	Units Completed	9,000	100	9,000	100
1,000	Closing Stock	1,000	100	200	20
Equivalent Units		10,000		9,200	
Expenses		₹ 1,20,000		₹ 27,600	
Cost per Equivalent unit		12		3	
Cost of Closing Stock= 1,000 × ₹ 12 + 200 × ₹ 3 =₹ 12,600					
Cost of Completion units= ₹1,20,000 + ₹ 27,600 - ₹ 12,600 = ₹1,35,000					

PROCESS M ACCOUNT

	Units	₹		Units	₹
To Material	10,000	1,20,000	By Transfer Process N	9,000	1,35,000
To Labour & Overhead		27,600	By Closing Stock	1,000	12,600
	10,000	1,47,600		10,000	1,47,600

STATEMENT OF EQUIVALENT UNITS (PROCESS N)

		Material		Labour & Overhead	
Input		Units	% Completion	Units	% Completion
600	Opening Stock (Work Competed in current period)			400	66 2/3
8,600	Units introduced and completed [units started less closing stock: (9,000 – 400)]	8,600	100	8,600	100
400	Closing Stock (work done in current period)	400	100	100	25
	Equivalent Units	9,000		9,100	
	Expenses	₹1,35,000		₹18,200	
	Cost per Equivalent unit	₹ 15		₹ 2	
Cost of Closing Stock = 400 × ₹ 15 + 100 × ₹ 2 = ₹ 6,200					
Cost of finished Stock (Product A) = ₹ 9,400 + ₹ 1,35,000 + ₹ 18,200 - ₹ 6,200 = ₹ 1,56,400					

PROCESS N ACCOUNT

	Units	₹		Units	₹
To Opening Stock	600	9,400	By Transfer to Finished Stock (Product A)	9,200	1,56,400
To Process M	9,000	1,35,000			
To Labour & Overhead		18,200	By Closing Stock	400	6,200
	9,600	1,62,600		9,600	1,62,600

(b) Define Non-Integrated Accounting System. State the features of it. [1+4=5]

Answer:

Non-Integrated Accounting System:

A system of accounting under which separate ledgers are maintained for cost and financial accounts is called Non-Integrated Accounting System. This system is also referred as Cost Ledger Accounting System.

Features of Non-Integrated Accounting System are as follows:

(i) Cost Accounting restricts itself to record only those transactions which relate to the product or service.

(ii) Cost Ledger Control Account is maintained in the financial books and a General Ledger Adjustment Account is maintained in costing books.

(iii) Certain expenses like interest, bad debts, revenue from sale of product, etc are not at all recorded in cost accounts.

(iv) Items which are excluded in cost accounts are represented by an account known as Cost Ledger Account.

(c) The net profits shown by financial accounts of a company amounted to ₹ 20,000 whilst the profits disclosed by company's cost account for that period were ₹ 30,290. On reconciling the figures, the following differences were noted.

(i) Director's fee not charged in cost accounts ₹ 650
(ii) A provision for bad and doubtful debts ₹ 570
(iii) Bank interest (cr.) ₹ 50
(iv) Income-tax ₹ 8,300
(v) Overheads in the cost accounts were estimated at ₹ 8,500. The charge shown by the financial books was ₹ 8,320.
(vi) Work was started during the year on a new factory and expenditure ₹ 20,000 were incurred.
(vii) Depreciation of 5% was provided in financial accounts.
Prepare a Statement reconciling the figures shown by the cost and financial accounts. **[5]**

Answer:

Statement showing reconciliation of profit shown by cost and financial accounts

Particulars	Amount ₹	Amount ₹
Profit as per Financial Accounts		20,000
Add:		
Directors fee	650	
Provision for bad debts	570	
Income tax	8,300	
Depreciation in financial books only	1,000	10,520
		30,520
Less:		
Bank interest	50	
Over recovery of Overheads	180	230
Profit as per cost Accounts		30,290

Question.4

(a) The following standards have been set to manufacture a product:

Direct Material	₹
2 units of A @ ₹ 4 per unit	**8.00**
3 units of B @ ₹ 3 per unit	**9.00**
15 units of C @ ₹1 per unit	**15.00**
	32.00
Direct labour 3 hrs. @ ₹8 her hour	**24.00**
Total standard prime cost	**56.00**

The company manufactured and sold 6,000 units of the product during the year. Direct material costs were as follows:
12,500 units of A at ₹ 4.40 per unit
18,000 units of B at ₹ 2.80 per unit
88,500 units of C at ₹ 1.20 per unit
The company worked 17,500 direct labour hours during the year. For 2,500 of these hours the company paid at ₹ 12 per hour while for the remaining the wages were paid at standard rate. Calculate materials price variances and usage variances and labour rate and efficiency variances. **[2.5x4=10]**

Answer:

For Material Cost Variances

Actual cost of material used

A	12,500 units x ₹ 4.40	=	₹55,000
B	18,000 units x ₹ 2.80	=	₹50,400
C	88,500 units x ₹ 1.20	=	₹1,06,200
			2,11,600

Standard cost of material used

A	12,500 units x ₹ 4.00	=	₹50,000
B	18,000 units x ₹ 3.00	=	₹54,000
C	88,500 units x ₹ 1.00	=	₹88,500
			1,92,500

Standard material cost of production 6,000 units x ₹32 = ₹1,92,000

Variances

	₹
Material price variance: ₹ 2,11,600 - ₹1,92,500 =	19,100 (A)
Material usage variance: ₹ 1,92,500 - ₹1,92,000 =	500 (A)
For Labour Cost Variance	
Actual wages paid to workers	
2,500hrs. x ₹12 =	30,000
15,000 hrs. x ₹8 =	1,20,000
	1,50,000

Payment involved, if workers had been paid at standard rate 17,500 hrs x ₹8 =₹ 1,40,000
Standard labour cost of output achieved 6,000 units x ₹ 24 = ₹ 1,44,000

Variances:
Labour Rate Variance: ₹1,50,000 - ₹1,40,000 = ₹10,000(A)
Labour efficiency variance: ₹1,40,000 - ₹1,44,000 = ₹4,000 (F)

(b) ABC Ltd. manufactures a single product for which market demand exists for additional quantity. Present sale of ₹ 60,000 per month utilises only 60%capacity of the plant. Sales Manager assures that with a reduction of 10% in the price he would be in a position to increase the sales by about 25% to 30%.

The following data are available .

(a) Selling price ₹ 10 per unit.
(b) Variable Cost ₹ 3 per unit.
(c) Semi-variable cost ₹ 6,000 fixed plus ₹ 0.50 per unit.
(d) Fixed Cost ₹20,000 at present level estimated to be ₹24,000 at 80% output.

You are required to submit the following statements to the board showing:

(a) The operating profits at 60%, 70% and 80% levels at current selling price and at proposed selling price.
(b) The percentage increase in the present output which will be required to maintain the present profit margin at the proposed selling price. [6+4]

Answer:

(a) (i) Comparative statement of operating profit at current selling price and proposed selling prices.

Particulars		Capacity		
		60%	70%	80%
1.	Output (units)	6,000	7,000	8,000

	Variable costs ₹3 per unit	₹18,000	₹21,000	₹24,000
	Semi- variable cost - fixed	6,000	6,000	6,000
	- variable	3,000	3,500	4,000
	Fixed costs	20,000	20,000	24,000
	Total costs	47,000	50,500	58,000
	Sales at current price	60,000	70,000	80,000
	Profit at current selling price	13,000	19,500	22,000
(ii)	Sales at proposed selling price @ ₹9	54,000	63,000	72,000
	Less: Total cost	47,000	50,500	58,000
	Profit at proposed selling price	7,000	12,500	14,000

(b)

Proposed selling price	=	₹9.00
Variable cost	=	3.50
Contribution		5.50
Present Profit	=	₹13,000
Fixed cost (20,000 + 6,000)	=	26,000
Required contribution		39,000

Required output $= \frac{\text{Required Contribution}}{\text{Contribution per unit}}$ = ₹39,000 ÷ 5.5 = 7091 units

% Increase in present output = 1,091/6,000 x 100 = 18.18%.

Section B – Answer any one question from this section

Question.5

(a) For what purposes the Cost Auditor refers to Financial Records while conducting the Cost Audit of an entity? [4]

Answer:

Audit Programme – The Cost Audit programme encompasses the regular financial audit procedures like vouching of expenses, verification of assets and determination of cost of assets, etc. hence, financial records should also be seen.

Profit Reconciliation – The Cost Auditor is expected to verify whether the company has reconciled the profits shown by Cost Records with the profit as per Financial Books. Also, the profits of products covered by the Rules and profits from other products should be segregated. Verification of the Profit Reconciliation Statement calls for a reference to the Financial Ledger also.

Common Information – The Company has to disclose quantitative details of Licensed Capacity, Installed Capacity, Actual Production, Raw Materials Consumption, Finished Goods Sold, Stocks etc. these are common to both financial and cost records and hence the data will be same. Hence, the Cost Auditor has to refer to the financial records also.

Error detection – A comparison between cost records and financial records may throw up the need for inquiry into errors, mistakes and manipulation. Material discrepancy between financial records and cost records will be highlighted in the Reconciliation Statement which would require that the Cost Auditor may examine deviation before reporting on the same.

Hence, it can be inferred that there is a considerable overlapping between financial and cost records. In case of discrepancies or differences, it is desirable that the Cost Auditor should communicate the same to the Company Auditor.

(b) A company under Cost Audit maintains its records on standard costing system. Is this acceptable for Cost Audit? What are the requirements in regard to variances and their treatment in cost preformed? [2+3]

Answer.

Where a company maintains cost records on any basis other than actual such as standard costing, the records shall indicate the procedure followed by the company in working out the cost of the activities and services under the system. The cost variances shall be shown against separate heads and analyzed into material, labour, and overheads and further into quantity, price, and efficiency variances. The method followed for adjusting cost variances in determining the actual cost of activities or services should be clearly indicated in cost records. The reasons for variances should also be clearly explained in cost records.

The cost auditor should verify that treatment of variances in cost statements is reasonable and consistently applied. Whether variances are intentioned or not will be a point of specific mention by the cost auditor.

(c) Why Cost Audit Report is not made public? State whether a Member of Parliament have access to the Cost Audit Report? [4+3]

Answer.

According to Cost Audit Report Rules, the Cost auditor is required to submit the Cost Audit Report to the Central Government and a copy thereof to the company concerned. The shareholders and the general public have no access to the Cost audit Report unlike the Financial Audit Report. Cost Audit Report is treated as a confidential document as it contains vital information which if divulged would affect competitiveness of trade and business of the company whose information is so divulged. A Cost Audit Report contains important information such as :

(i) A detailed note on manufacturing process of the Company.
(ii) Quantities and rates of various items of input materials, i.e the entire recipe is given.
(iii) Quantities and rates of utilities consumed.
(iv) Average sales realization, sales promotion expenses including discount allowed.
(v) Details regarding export market, quantity exported, F.O.B realization etc.
(vi) Any other energy saving measure or technical improvement in process, which a company might have implemented arising out of its own research.

Such data, as a measure of business strategy should not be made available to the competitors who may take advantages and put the company to a disadvantageous position. As such cost data is a secret matter and the company secrets and management strategy contained therein should not be disclosed. There is a provision under subsection(10) of section 233-B of the Companies Act that Central Government can direct a company to make available the Cost Audit Report in full or in part to the shareholders. However this power has not been exercised so far.

It is for the same reason mentioned above that members of parliament are not allowed to access Cost Audit Report. It is the Parliament who has made the law under which Cost Audit Report is treated as confidential document other than for the Government and the company. So unless the law is changed, members, who are representatives of public cannot have access to Cost Audit Report. But Government have agreed to give all non confidential information like overall profitability, capacity utilization etc from Cost Audit Report. In view of what has been stated above, there is no specific provision in the Companies Act or Cost Audit Report Rules to make the Cost Audit Report being made available to members of Parliament.

Question.6

(a) What is the time limit within which the Central Government can seek clarification from the Cost Auditor? [2]

Answer:

Time limit within which the central government can seek clarification from the Cost Auditor

There is no time limit within which the Central Government can seek clarification from the cost auditor. The Rules have now specified that the Company would be required to maintain the cost accounting records for the preceding eight financial years in good order. The cost auditor is required to provide reply to any clarification sought for by the Central Government from the cost auditor in writing within 30 days of the receipt of the communication addressed to him calling for such clarifications.

(b) How will you treat the following items in Cost Accounting Records?

(i) Interest received on security deposit with the Electricity Board.

(ii) Voluntary Retirement Compensation paid to workers, included under wages

(iii) Cenvat availed as credit on purchased raw materials

(iv) Profit on sale of fertilizers to cane-growers by a sugar company. [1.5x4=6]

Answer:

(i) This cannot be considered as an investment outside the business. Deposit with Electricity Board is made for obtaining power connection and is based on estimated monthly bill for power consumption. It is part of the Working Capital (Current Assets), interest on such deposits can therefore be set off against interest paid or alternatively taken as a credit against overhead. However, the amount involved may not be very significant.

(ii) This is a one-time non-recurring expenditure. Even if it is included under salaries and wages in Financial A/c., it should be excluded for Cost Accounts purposes. This item is also an item of reconciliation.

(iii) This is to be deducted from the cost of raw materials, and only the Net Value should be taken in the priced Stores Ledger, which forms the basis for pricing material, issues to cost centres.

(iv) Some sugar factories supply fertilizers to cane growers to ensure quality of suppliers, and as an incentive for regular supply. Although it helps sugar production, this activity is not directly related to sugar production and is purely a trading activity. The profit from such activity should be shown as an item of reconciliation between Financial and Cost Accounts.

(c) "It is not possible to merge Cost Audit with Financial Audit to have a Composite Audit." Discuss. [8]

Answer.

Even though there are considerable areas of overlapping between cost and financial records, a composite audit requirement between the two is not feasible on the following grounds:

(i) Different information systems – It is difficult to collect the accounting information required for cost ad financial audit purposes, in a single format.

(ii) Objective of audit – The main objective of financial audit is to express an opinion on the truth and fairness of the information contained in the financial statements. But the main objective of cost audit is to verify the cost statements and see whether a true and fair cost of production and of marketing has been worked out.

(iii) Focus of audit – Cost Audit focuses on review of information in respect of each cost element in detail. Hence, the focus of audit and review of information is much different from that of financial audit.

(iv) Classification of accounting data – Financial Accounts present data under the natural accounting heads. However, Cost Records present information based on product lines and cost-centres.

(v) Confidentiality – The Financial Audit Report is too general and is made public as per the requirements of the Companies Act, 1956. The Cost Auditor Report may contain certain information which the Company considers confidential.

(vi) Applicability – The maintenance of Cost Accounting Records by all types of industries may also not be practicable. At present, small-scale industrial undertakings are exempted from maintaining Cost Accounting Records, even of they belong to industry which is required to maintain Cost Records.

(vii) Toll of management – Cost Audit can be considered as tool of internal management by a Company to operate effectively in a competitive environment by disclosing weaknesses in a cost accounting system and disclosing inefficiencies at all levels of organization. On the other hand, Financial Audit can give a picture of the overall results only.

(viii) Extensive nature – The Cost Auditor does not have to state only whether the Cost Statements reflect a true and fair view, but has to go much beyond and express his opinion also on propriety and efficiency aspects.

Section C – Answer any two questions from this section

Question.7

(a) What are the pricing policies for introduction stage of a new product? [8]

Answer:

There are two alternative price strategies which a firm introducing a new product can adopt, viz., skimming price policy and penetration pricing policy.

A. Skimming Price Policy:

When the product is new but with a high degree of consumer acceptability, the firm may decide to charge a high mark up and, therefore, charge a high price. The system of charging high prices for new products is known as price skimming for the object is to "skim the cream" from the market. There are many reasons for adopting a high mark-up and, therefore, high initial price:

(i) The demand for the new product is relatively inelastic. The high prices will not stop the new consumers from demanding the product. The new product, novelty, commands a better price. Above all, in the initial stage, there is hence cross elasticity of demand is low.

(ii) If life of the product promises to be a short one, the management may fix a high price so that it can get as much profit as possible and, in as short a period as possible.

(iii) Such an initially high price is also suitable if the firm can divide the market into different segments based on different elasticity's. The firm can introduce a cheaper model in the market with lower elasticity.

(iv) High initial price may also be needed in those cases where there is heavy investment of capital and when the costs of introducing a new product are high. The initial price of a transistor radio was ₹ 500 or more (now ₹ 50 or even less); electronic calculators used to cost ₹ 1,000 or more, they are now available for ₹ 100 or so.

B. Penetration Price Policy:

Instead of setting a high price, the firm may set a low price for a new product by adding a low mark-up to the full cost. This is done to penetrate the market as quickly as possible. The assumptions behind the low penetration price policy are:

(i) The new product is being introduced in a market which is already served by well-known brands. A low price is necessary to attract gradually consumers who are already accustomed to other brands.

(ii) The low price will help to maximize the sales of the product even in the short period.

(iii) The low price is set in the market to prevent the entry of new products.

Penetration price policy is preferred to skimming price under three conditions:

In the first place, skimming price offering a high margin will attract many rivals to enter the market. With the entry of powerful rivals into the market, competition will be intensified, price will fall and profits will be competed away in the long run. A firm will prefer a low penetration price if it fears the entry of powerful rivals with plenty of capital and new technology. For a low penetration price, based on extremely low mark-up will be least profitable and potential competitors will not be induced to enter the market.

Secondly, a firm will prefer low penetration price strategy if product differentiation is low and if rival firms can easily imitate the product. In such a case, the objective of the firm to fix low price is to establish a strong market based and build goodwill among consumers and strong consumer loyalty.

Finally, a firm may anticipate that its main product may generate continuing demand for the complementary items. In such a case, the firm will follow penetration pricing for its new product, so that the product as well as its complements will get a wider market.

(b) What is going rate pricing? [4]

Answer:

A method of pricing adopted by small firms – which are price followers – is known as going rate pricing. Under this system, a firm sets its price according to the general pricing structure in the industry or according to the price set by the price leader. In a sense, each firm has "monopoly" power over its produce and it can, if it chooses, fix a monopoly price and face all the consequences of monopoly. In practice, however, it prefers the easier and more practical method of choosing price going in the market. It will change its price only when other firms do the same. Such a price policy is useful and safe to a firm under certain circumstances. For instance, the firm may not have an accurate idea of its costs or it may like to play safe and not provoke the larger firm to go for cut-throat competition. Besides, it is difficult for each firm to calculate the full implication of change in costs and prices and it is much better to follow the same pattern of pricing adopted by others. Even a large firm may be satisfied with going rate pricing lest a change in price by it unnecessarily disturbs the whole market. No firm would like to "spoil" the common market by reducing the price.

Question.8

(a) The cost function 'c' of a firm = $\frac{1}{3}x^3 - x^2 + 5x + 3$, find the level at which the marginal cost and the average variable cost attain their respective minimum. [4]

Answer:

$C = \frac{1}{3}x^3 - x^2 + 5x + 3$

Marginal Cost = $\frac{dc}{dx} = \frac{1}{3}3x^2 - 2x + 5$

$= x^2 - 2x + 5$ ('y' say)

$\frac{dy}{dx} = 2x - 2 = 0$

$\therefore x = 1$

$\frac{d^2y}{dx^2} = 2$, which is positive

$\therefore$ Marginal cost is minimum at $x = 1$

Average Variable Cost = $\frac{1}{3}x^2 - x + 5$ (y say)

$\frac{dy}{dx} = 2/3\ x - 1 = 0$

$\Rightarrow \frac{2}{3}x = 1$

$\therefore x = \frac{3}{2}$

$\frac{d^2y}{dx^2} = \frac{2}{3}$, positive

$\therefore$ Average Variable Cost is minimum at output $x = \frac{3}{2}$

(b) A radio manufacturer produces 'x' sets per week at total cost of ₹ x^2 + 78x + 2500. He is a monopolist and the demand function for his product is $x = \frac{(600 - p)}{8}$, when the price is 'p' per set. Show that maximum net revenue is obtained when 29 sets are produced per week what is the monopoly price. [4]

Answer:

Cost (C) = $x^2 + 78x + 2500$

Demand (D) X = (600 – P) / 8

8x = 600 – P

$\therefore$ P = 600 – 8x

Total Revenue per 'x' sets = Price × x = $600x - 8x^2$

Maximum revenue is obtains at MC = MR

Marginal Cost = $\frac{dc}{dx} = 2x + 78$ – (i)

Marginal Revenue = $\frac{dr}{dx} = 600 - 16x$ – (ii)

Equity (i) & (ii)

2x +78 = 600 – 16x

= 18x = 522

$\therefore$ x = 522/18= 29

Monopoly price 600 – 8x

600 – 8 × 29

= 600 – 232 = 368

(c) What are the components of time series? [4]

Answer:

A typical time services has the following four major components:

(i) A Secular trend: representing the long-term direction, or average movement in the time series.

(ii) Cyclical fluctuations: which usually follow variations in the growth of the economy in general, around a long-term, secular trend

(iii) Seasonal variations: caused by changes in weather conditions and social habits, such as the need to buy X-mas cards in December and dresses during the festival season (Dewali or Durga Puja).

(iv) Random or unsystematic variations: such as wars, revolutions, crop failures, natural calamities, and changes in tastes and preferences of buyers.

Question.9

(a) K Ltd. sells output in a perfectly completive market. The average variable cost function of K Ltd. is

$$AVC = 300 - 40Q + 2Q^2$$

K Ltd has an obligation to pay ₹ 500 irrespective of the output produced.
What is the price below which K Ltd. has to shut down its operation in the short run? **[5]**

Answer:

A firm has to shut down its operation, if the price is less than average variable cost.
Under perfect competition
P = MR
i.e. Price is equal to marginal revenue. The firm will continue its operation under the short run so long as price is atleast equal to average variable cost.
Thus the equilibrium price at which the firm will shut down is the minimum AVC i.e. the average variable cost.

$AVC = 300 - 40Q + 2Q^2$

AVC is minimum where $\frac{d(AVC)}{dQ} = 0$

i.e. $\frac{d(AVC)}{dQ} = -40 + 4Q = 0$

i.e. Q = 10 units.

When the firm is producing 10 units,

$AVC = 300 - 40Q + 2Q^2$

$= 300 - 40(10) + 2(10)^2$

$= 300 - 400 + 200 = 100$

If the price falls below ₹ 100 the firm has to shut down its operation under short run.

(b) How income elasticity helps in business decision? **[7]**

Answer:

Income elasticity of demand measures the relationship between a change in quantity demanded for good X and a change in real income. The formula for calculating income elasticity is:
% change in demand divided by the % change in income

The income elasticity of demand is usually strongly positive for

- Fine wines and spirits, high quality chocolates and luxury holidays overseas.
- Sports cars
- Consumer durables - audio visual equipment, smart-phones
- Sports and leisure facilities (including gym membership and exclusive sports clubs).

In contrast, income elasticity of demand is lower for

- Staple food products such as bread, vegetables and frozen foods.
- Mass transport (bus and rail).
- Beer and takeaway pizza!
- Income elasticity of demand is negative (inferior) for cigarettes and urban bus services.

Product ranges and longer term trends
Income elasticity of demand will vary within a product range. For example the yet for own-label foods in supermarkets is less for the high-value "finest" food ranges.

There is a general downward trend in the income elasticity of demand for many basic products, particularly foodstuffs. One reason is that as a society becomes richer, there are changes in tastes and preferences. What might have been considered a luxury good several years ago might now be regarded as a necessity? How many of you regard a Sky sports subscription or an iPhone5, an iPad2 or a new Blackberry as a necessity?

The income elasticity of demand for most types of food is low – occasionally negative (e.g. for margarine) and likewise the own price elasticity of demand for most foodstuffs is also inelastic.

How do businesses make use of estimates of income elasticity of demand?
Knowledge of income elasticity of demand helps firms predict the effect of an economic cycle on sales. **Luxury products** with high income elasticity see greater sales volatility over the business cycle than **necessities** where demand from consumers is less sensitive to changes in the cycle.

Income elasticity and the pattern of consumer demand
As we become better off, we can afford to increase our spending on different goods and services. The income elasticity of demand will also affect the pattern of demand over time.

- For **normal luxury goods** - income elasticity of demand exceeds +1, so as incomes rise, the proportion of a consumer's income spent on that product will go up.
- For **normal necessities** (income elasticity of demand is positive but less than 1) and for inferior goods (where the income elasticity of demand is negative) – then as income rises, the share or proportion of their budget on these products will fall
- For inferior goods as income rise, demand will decline and so too will the share of income spent on inferior products.

A good example of a product with a negative income elasticity of demand is tobacco products. Many factors affect demand for cigarettes and related products – not least the level of indirect tax placed on them by the government and also the effects of health campaigns and bans on smoking in public places.