Paper – 10: Cost & Management Accountancy

The following table lists the learning objectives and the verbs that appear in the syllabus learning aims and examination questions:

	Learning objectives	Verbs used	Definition
LEVEL B	KNOWLEDGE What you are expected to know	List	Make a list of
		State	Express, fully or clearly, the details/facts
		Define	Give the exact meaning of
	COMPREHENSION What you are expected to understand	Describe	Communicate the key features of
		Distinguish	Highlight the differences between
		Explain	Make clear or intelligible/ state the meaning or purpose of
		Identity	Recognize, establish or select after consideration
		Illustrate	Use an example to describe or explain something
	APPLICATION How you are expected to apply your knowledge	Apply	Put to practical use
		Calculate	Ascertain or reckon mathematically
		Demonstrate	Prove with certainty or exhibit by practical means
		Prepare	Make or get ready for use
		Reconcile	Make or prove consistent/ compatible
		Solve	Find an answer to
		Tabulate	Arrange in a table
	ANALYSIS How you are expected to analyse the detail of what you have learned	Analyse	Examine in detail the structure of
		Categorise	Place into a defined class or division
		Compare and contrast	Show the similarities and/or differences between
		Construct	Build up or compile
		Prioritise	Place in order of priority or sequence for action
		Produce	Create or bring into existence

Paper – 10: Cost & Management Accountancy

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

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

Question.1

(a) ABC Ltd. Company has Fixed cost of ₹ 90,000, Sales ₹ 3,00,000 and Profit of ₹60,000. Calculate the Sales Volume if in the next period, the ABC Ltd. Company suffered a loss of ₹20,000. [2]

Answer:

Profit Volume Ratio = (Contribution / Sales) × 100
= [(₹90,000 + ₹60,000) / ₹3,00,000] × 100
= 50 %

Let, sales volume when the company suffered loss of ₹20,000 = ₹ m
Now, Profit Volume Ratio = Change in Profit / Change in Sales

$$\text{Or, } 50\% = \frac{-₹20,000 - ₹60,000}{₹3,00,000 - ₹m}$$

= ₹1,40,000

(b) A truck capable of carrying 8 tonnes of goods normally carries 80% of the load in the outward journey and 40% of the load on inward journey. The journey is 100 kms for one side. 1-year= 360 days. Compute the tonne-kms. [2]

Answer:

Tones-km = (8x 80% x 100 x 360) + (8 x40% x 100 x 360)
= 2,30,400 + 1,15,200
= 3,45,600 Tonne-kms.

(c) A television Company manufactures several components 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:

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

Where, A= Annual demand,
S=Set up cost per batch,
C=carrying cost per unit per year,

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

=2,000 units

(d) The cost per unit of a product manufactured in a factory of ZENION LTD. amounts to ₹160 (75% variable) when production is 10,000 units. If the production increases by 25%, estimate the cost of production per unit. [2]

Answer:

Variable Cost per unit = ₹160 x 0.75 = ₹120
Fixed Cost per unit = (160 -120) = ₹40
Total fixed Cost = 10,000 x 40 = ₹4,00,000
Total Cost per unit when production is 12,500 units (10,000 x 1.25)

$$=120+\frac{4,00,000}{12,500}$$

= 120 + 32
= ₹152

(e) List any two features of Non-Integrated Accounting System. [2]

Answer:

The features of Non- integrated Accounting System are as follows:

(i) Cost Accounting restrict 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.

(f) ABC LTD. is a 100% EOU as per the policy announced under the Foreign Trade Policy but is not registered under the provisions of Foreign Trade Policy. Will this company be exempted from mandatory Cost Audit? [2]

Answer:

The exemption for mandatory cost audit is applicable to those 100% EOU, who are registered under the policy document as per the foreign trade policy and the 100% EOU is functioning within the permissible approved limits as per the foreign trade policy.
In the instant case, ABC LTD. is a 100% EOU as per the policy announced under the Foreign Trade Policy but is not registered under the provisions of Foreign Trade Policy. Hence, ABC LTD. is not exempted from mandatory Cost Audit.

(g) TUR Ltd. has two divisions. Division – I is involved in manufacturing of Railway and tramway locomotives & Division – II is involved in providing after sale service to their customer. His Aggregate annual turnover from manufacturing division is ₹ 70 crores and annual receipts from service division is ₹ 35 crores. State whether Companies (Cost Records and Audit) Rules, 2014 is applicable to the company? [2]

Answer:

As per Rule 3 of Companies (Cost Records and Audit) Rules, 2014, the class of companies including foreign companies, engaged in the production of the goods or providing services, specified in the Table, having an overall turnover from all its products and services of ₹35 crore or more during the immediately preceding financial year, shall maintain cost records for such products or services in their books of account.

In the given case, the product is covered under item (B) as non-regulated sector of rule 3.
The overall turnover of the company is ₹ 105 crores. Hence the company is required to maintained cost records under Rule 3 and also the aggregate turnover of the individual product "Railway and Tramway Locomotives" manufacturing by the company is not less than ₹ 35 crore. Hence, the company is also required to conduct cost audit.

(h) State the conditions for price discrimination. [2]

Answer:

The price discrimination is possible if the following conditions are satisfied.

- **More than one Market:** There must be two or more than two separate markets otherwise the price discrimination is not possible. Different markets must be essential for charging different prices from different persons.
- **Different elasticity:** The elasticity of demand in each market must be different. It means that if one market is less elastic than the other it should be elastic. If the elasticity of demand is equal in all markets there will be no scope for price discrimination.

(i) Given $C = x^3 - 10x^2 + 5x$; $R = 8x^2 + 11x - 4$. Calculate the total profit and hence marginal profit. [2]

Answer:

$C = x^3 - 10x^2 + 5x$

$R = 8x^2 + 11x - 4$

Total Profit = R – C

$= 8x^2 + 11x - 4 - x^3 + 10x^2 - 5x$

$= -x^3 + 18x^2 + 6x - 4$

$= -(x^3 - 18x^2 - 6x + 4)$ (Say P)

Marginal Profit $\frac{dp}{dx} = (3x^2 - 36x - 6)$

(j) Priyanka advertises to sell cookies for ₹4 a dozen. She sells 50 dozen, and decides that she can charge more. She raises the price to ₹6 a dozen and sells 40 dozen. Calculate the elasticity of demand? [2]

Answer:

To find the elasticity of demand, we need to divide the percent change in quantity by the Percent change in price.

$$E_d = \frac{\text{Percentage change in Demand}}{\text{Percentage change in Price}}$$

$$E_d = \frac{\frac{40-50}{50} \times 100}{\frac{6-4}{4} \times 100}$$

$$\text{Elasticity} = \frac{-20\%}{50\%} = |-0.4| = 0.4$$

The elasticity of demand is 0.4 (elastic).

SECTION A
Answer any two questions from this section.

Question.2 (a)

(i) Sintex Ltd. has prepared its expense budget for 25,000 units in its factory for the year 2014 as detailed below:

	₹ per unit
Direct Materials	**45**
Direct Labour	**20**
Variable overhead	**15**
Direct Expenses	**6**
Selling Expenses (80% Variable)	**15**
Factory Expenses (100% fixed)	**7**
Administration Expenses (100% fixed)	**4**
Distribution Expenses (25% fixed)	**12**
Total	**₹124**

Prepare Flexible budget for the production of 15,000 units and 20,000 units. **[8]**

Answer:

In the books of Sintex Ltd.
Flexible Budget

	Production	
Particulars	**15,000 units**	**20,000 units**
	₹	₹
Direct material @ ₹45 per unit	6,75,000	9,00,000
Direct Labour @ ₹20 per unit	3,00,000	4,00,000
Direct Expenses @ ₹6 per unit	90,000	1,20,000
Variable Overhead @ ₹15 per unit	2,25,000	3,00,000
Selling Expenses:		
Fixed: (₹15 × 25,000 units × 20%)	75,000	75,000
Variable: (₹15 × 25,000 units × 80%) ÷ 25,000 units = ₹12 per unit	1,80,000	2,40,000
Factory Expenses (100% Fixed)		
Fixed: (₹7 × 25,000 units)	1,75,000	1,75,000
Administration Exp. (100% Fixed)		
Fixed: (₹4 × 25,000 units)	1,00,000	1,00,000
Distribution Expenses		
Fixed: (₹12 × 25,000 × 25%)	75,000	75,000
Variable: (₹12 × 25,000 × 75%) ÷ 25,000 units = ₹12 per unit	1,35,000	1,35,000
Total Cost	20,30,000	25,20,000

(ii) Distinguish between Job Costing and Process Costing. **[4]**

Answer:

The main points of difference between job Costing and Process Costing are as follows:

	Job Costing	Process Costing
1.	Each job is carried out against specific order.	Process costing has continuous flow.

2.	Costs are collected and ascertained for each job separately.	Costs are collected and ascertained for each process separately.
3.	Costs are calculated only on completion of job	Process costs are calculated at the end of each period.
4.	There may or may not be any work in progress.	There is always some WIP because of continuous nature of production.

(iii) An amount of ₹63,36,000 was incurred on a contract work upto 31.03.2015. Certificates have been received to date to the value of ₹76,80,000 against which ₹69,12,000 has been received in cash. The cost of work done but not certified amounted to ₹1,44,000. It is estimated that by spending an additional amount of ₹3,84,000 (including provision for contingencies) the work can be completed in all respects in another two months. The agreed contract price of the work is ₹80 lakhs. Compute a conservative estimate of the profit to be taken to the profit & Loss Account. Illustrate four method of computing the profit. [8]

Answer:

CALCULATION OF NOTIONAL PROFIT

Work Certified	₹76,80,000
Work Uncertified	₹1,44,000
	₹78,24,000
Less: Total expenditure upto date	₹63,36,000
	₹14,88,000

COMPUTATION OF ESTIMATED TOTAL PROFIT (N.P)

Expenditure incurred upto 31st March, 2014	₹63,36,000
Estimated additional expenditure (including provision for contingencies)	3,84,000
Estimated total cost (A)	67,20,000
Contract price (B)	80,00,000
Estimated total profit (B-A)	12,80,000

COMPUTATION OF CONSERVATIVE ESTIMATE OF THE PROFIT TO BE TAKEN TO PROFIT & LOSS ACCOUNT:

(i) $\text{Estimated Profit} \times \frac{\text{Value of work certified}}{\text{Contract price}} \times \frac{\text{Cash received}}{\text{Value Certified}}$

$= 12,80,000 \times \frac{76,80,000}{80,00,000} \times \frac{69,12,000}{76,80,000}$

=₹11,05,920

Or,

(ii) $\text{Estimated profit} \times \frac{\text{Cost of work to date}}{\text{Estimated Total Cost}} \times \frac{\text{Cash received}}{\text{Value Certified}}$

$= 12,80,000 \times \frac{63,36,000}{67,20,000} \times \frac{69,12,000}{76,80,000}$

=₹10,86,171

Or,

(iii) $\text{Estimated profit} \times \frac{\text{Cash received}}{\text{Contract Price}}$

$$= 12,80,000 \times \frac{69,12,000}{80,00,000}$$

=₹11,05,920

(iv)

$$= \frac{2}{3} \times \text{NotionalProfit} \times \frac{\text{Cashreceived}}{\text{WorkCertified}}$$

$$= 2/3 \times 14,88,000 \times \frac{69,12,000}{76,80,000}$$

=₹8,92,800

Question.2 (b)

(i) The following are the figures relating to a factory for two successive years:

	Year I (₹)	Year II (₹)
Sales	**10,00,000**	**16,80,000**
Marginal Cost of Sales	**6,00,000**	**8,00,000**
Contribution	**4,00,000**	**8,80,000**

During Year II, the selling price increased by 20% and the company implemented a cost reduction programme very aggressively. You are required to analyse the increase in contribution due to:

(i) Increase in selling price

(ii) Increase in sales volume

(iii) Reduction in cost **[3+3+3]**

Answer:

Increase in Contribution = ₹8,80,000 – ₹4,00,000 = ₹4,80,000

Calculation of P/V Ratio:

P/V Ration = Contribution / Sales

$$\text{Year I: P /V Ratio} = \frac{4,00,000}{10,00,000}$$

= 40%

$$\text{Year II: P /V Ratio} = \frac{8,80,000}{16,80,000}$$

= 52.38%

It is assumed that the no. of units sold are 1,00,000.

Selling Price = 10,00,000 / 1,00,000

= ₹10

Increase in selling price by 20% in year II

Therefore, selling price in the year II = ₹12

No. of units in Year II = 16,80,000 / 12

= 1,40,000 units

(i) Increase in Contribution due to increase in Selling Price

The increase in selling price will lead to the increase in contribution. Selling price has increase by 20% and the contribution has increased by 120%. This means for every 1% increase in the selling price the contribution will increase by 6%. The increase in the selling price was directly related to the increase in the contribution. Change in the selling price will not affect in the production thereby the change in the variable cost, as both are not related activities in the production.

(ii) Increase in Contribution due to increase in Sales Volume

In the given situation, the increase in the sales volume (from I year to II year) resulted in increase in the contribution to some extent. The amount of sales is increased as the no. of units sold has been increased. By this, the amount of contribution is also increased. The increase in the sales volume was directly related to the increase in the contribution. There is no relation between the sales volume and production run.

(iii) Increase in Contribution due to reduction in cost

Since the company has implemented a cost reduction programme, the cost of production per unit will be automatically reduced and there by contribution per unit will go up. In the absence of the data as to quantitative details, we cannot attribute whether the increase in contribution is resulted due to increase in quantity of goods sold or due to implementation of cost reduction programme. However, if the quantum of increase in sales units is less than 40% of the number of units, then, we conclude that the increase in contribution is due to implementation of the cost reduction programme to that extent.

(ii) A factory has a key resource (bottleneck) of Facility X which is available for 15,650 minutes per week. Budgeted factory costs and data on two products, A and B, are shown below:

Product	Selling price/Units	Material cost/Unit	Time in Facility X
A	₹30	₹15.00	2.5 minutes
B	₹30	₹13.125	5 minutes

Budgeted factory cost per week:

	₹
Direct labour	18,750
Indirect labour	9,375
Power	1,312.5
Depreciation	16,875
Space Costs	6,000
Engineering	2,625
Administration	3,750

Actual production during the last week is 2,375 units of product A and 325 units of product B. Actual factory cost was ₹58,687.5.

Calculate:

(i) Total factory costs (TFC)
(ii) Cost per factory minute
(iii) Return per factory minute for both products
(iv) TA ratios for both product
(v) Throughput cost per the week
(vi) Efficiency ratio **[$1^1/_2$+$1^1/_2$+3+2+$1^1/_2$+$1^1/_2$]**

Answer:

(i) Total factory cost= Total of all costs except materials.
= ₹18,750 + ₹9,375 + ₹1,312.5 + ₹16,875 + ₹6,000 + ₹2,625 + ₹3,750
= ₹58,587.5

(ii) Cost per Factory Minute=Total Factory Cost÷ Minutes available
= ₹58,687.5 ÷ 15,650
=₹3.75

(iii)

(a) Return per bottleneck minute for the product A= $\frac{\text{Selling Price} - \text{Material Cost}}{\text{Minutes in bottleneck}}$

= (30-15)/ 2.5
= ₹6

(b) Return per bottleneck minute for the product B= $\frac{\text{Selling price} - \text{Material Cost}}{\text{Minutes in bottleneck}}$

= (30 – 13.125)/ 5
= ₹3.375

(iv) Throughput Accounting (TA) Ratio for the product A= $\frac{\text{Return per Minute}}{\text{Cost per Minute}}$

= (6/ 3.375)
=₹1.778

Throughput Accounting (TA) Ratio for the product B= $\frac{\text{Return per Minute}}{\text{Cost per Minute}}$

= (3.375/ 3.75
=₹0.9

Based on the review of the TA ratios relating to two products, it is apparent that if we only made product B, the enterprise would suffer a loss, as its TA ratio is less than 1. Advantage will be achieved, when product A is made.

(v) Standard minutes of throughput for the week:
= [2,375 × 2.5] + [325 ×5]
= 5,937.5 + 1,625
=7,562.5 minutes
Throughput Cost per week:
=7,562.5 × ₹3.75 per minutes
=₹28,359.375

(vi) Efficiency % =(Throughput Cost/ Actual TFC) %
= (₹28,359.375/ ₹58,687.5) ×100
=48.323%

The bottleneck resource of facility A is advisable for 15,650 minutes per week but produced only 7,562.50 standard minutes. This could be due to:

- The process of a 'wandering' bottleneck causing facility A to be underutilized.
- Inefficiency in facility A.

Question.2 (c)

(i) A company manufactures one main product (A) and two by-products X and Y. For the month of September 2014, following details are available:
Total Cost up to Separation point ₹2,20,000.

	A	X	Y
Cost after separation	-	₹35,000	₹24,000
No. of units produced	4,000	1,800	3,000
Selling price per unit	₹100	₹40	₹30
Estimated net profit as percentage to sales value	-	20%	30%
Estimated selling expenses as percentage to sales value	25%	18%	20%

There is no beginning or closing inventories.
Prepare statement showing:
(i) Allocation of joint cost; and
(ii) Product wise and overall profitability of the company for September 2014. [5+5]

Answer:

(i) Allocation of Joint Cost:

Particulars	By Product X (₹)	By Product Y (₹)
Sales Value	72,000	90,000
Less: Estimated net profit on sales value A= 20%; B= 30%	14,400	27,000
Estimated total cost	57,600	63,000
Less: Estimated selling expenses on sales value A= 18%; B= 20%	12,960	18,000
Estimated cost before separation	44,640	45,000
Less: Cost after separation	35,000	24,000
Estimated total cost up to separation point	9,640	21,000

Total cost up to separation point of main process		₹2,20,000
Less: Cost up to separation point (as shown above)	A= ₹9,640 B= ₹21,000	₹30,640
Cost up to separation point Main Product A		₹1,89,360

(ii) Product wise and overall profitability of the Company:
Comparative Profit and Loss Statement

Particulars	Total (₹)	Main Product A (₹)	By Product X (₹)	By Product Y (₹)
Sales value	5,62,000	4,00,000	72,000	90,000
Less: Cost				
Up to separation point	2,20,000	1,89,360	9,640	21,000
After separation point	59,000	-	35,000	24,000
Total costs	2,79,000	1,89,360	44,640	45,000
Gross profit (Sale – Cost)	2,83,000	2,10,640	27,360	45,000
Less: Selling expenses	1,30,960	1,00,000	12,960	18,000
Net Profit	1,52,040	1,10,640	14,400	27,000

(ii) The budgeted sales for one month and the actual results achieved are as under:

Product	Budget			Actual		
	Quantity Nos.	Rate ₹	Amount ₹	Quantity Nos.	Rate ₹	Amount ₹
A	**1,000**	**100**	**1,00,000**	**1,200**	**125**	**1,50,000**
B	**700**	**200**	**1,40,000**	**800**	**150**	**1,20,000**
C	**500**	**300**	**1,50,000**	**600**	**300**	**1,80,000**
D	**300**	**500**	**1,50,000**	**400**	**600**	**2,40,000**
	2,500		**5,40,000**	**3,000**		**6,90,000**

Calculate in respect of each product, the sales variances.

Answer:

Sales Value Variance = Budgeted sales – Actual Sales
= ₹5,40,000 – 6,90,000 = 1,50,000 (Favourable)

Sales Price Variance = Standard sales – Actual Sales
Or = Actual Qty. × (Std. rate – Actual rate)

A	=	1,200 × (100 – 125)	= ₹30,000 (F)
B	=	800 × (200 – 150)	= ₹40,000 (A)
C	=	600 × (300 – 300)	= Nil
D	=	400 × (500 – 600)	= ₹40,000 (F)
			30,000 (F)

Sales Volume Variance = Budgeted sales – Standard Sales
Or, Std. rate × (Budgeted Qty. – Actual Qty.)

A	=	100 × (1,000 – 1,200)	= ₹20,000 (F)
B	=	200 × (700 – 800)	= 20,000 (F)
C	=	300 × (500 – 600)	= 30,000 (F)
D	=	500 × (300 – 400)	= 50,000 (F)
			₹1,20,000 (F)

Verification:

Sales Value Variance = Sales price Variance + Sales volume variance
= ₹30,000 (F) + ₹1,20,000 (F)
= ₹1,50,000 (Favorable)

Sales Mix Variance = Revised Standard Sales – Standard Sales
Or = Std. Rate × (Revised Std. Qty. – Actual Qty.)

Revised Std. Qty. $= \frac{\text{Total Actual Mix of Sales}}{\text{Total Standard Mix of Sales}} \times$ Std. Qty.

Sales mix variance:

A = 100 × (1,200 – 1,200)	=	Nil
B = 200 × (840 – 800)	=	8,000 (A)
C = 300 × (600 – 600)	=	Nil
D = 500 × (360 – 400)	=	20,000 (F)
		12,000 (Favorable)

Revised Volume Variance or Qty. Variance = Budgeted Sales – Revised Std. Sales
Or
= Std. Rate x (Budgeted Qty – Revised Std. Qty)

A	=	100 × (1,000 – 1,200)	= ₹20,000 (F)
B	=	200 × (700 – 840)	= 28,000 (F)
C	=	300 × (500 – 600)	= 30,000 (F)
D	=	500 × (300 – 360)	= 30,000 (F)
			₹1,08,000 (F)

Verification:

Sales Volume Variance = Sales Mix Variance + Revised Volume or Quantity Variance
= ₹12,000 (F) + ₹1,08,000 (F)
= ₹1,20,000 (favourable)

Section B

Answer any two questions from this section.

Question.3 (a)

(i) XYZ Ltd is a manufacturer of Steel since 1st December, 2012. The aggregate turnover of the product during the immediately preceding financial year is ₹ 30 crore. During the current financial year 2014-15 his turnover is ₹ 120 crore. You as a Cost Accountant, suggest whether any Cost Records is required to be maintained by XYZ Ltd for the financial year 2014-15? [4]

Answer:

Rule 3 of the Companies (Cost Records and Audit) Rules, 2014 *is applicable to the class of companies, including foreign companies defined in clause (42) of section 2 of the Act, engaged in the production of the goods or providing services, as specified in the Table (regulatory or Non-regulatory Sectors) of Rule 3, having an overall turnover from all its products and services of ₹ 35 crore or more during the immediately preceding financial year, shall include cost records for such products or services in their books of account.*

XYZ Ltd is a manufacturer of steel, which is covered under item of non-regulatory sector of rule 3 and aggregate turnover during the immediately preceding financial year is less than ₹ 35 crore. Hence XYZ Ltd is not liable to maintain cost records during the financial year 2014-15.

However, XYZ Ltd. is required to maintain Cost Records and gets his accounts audited for the financial year 2015-16 as per rule 3 & 4 of the Companies (Cost Records and Audit) Rules, 2014.

(ii) **Sufficient details should be available in Cost Records, on Packing Materials. Explain. [4]**

Answer:

In addition to details on Raw Materials and other inputs the Cost Records must also show –

- Quantity and Cost of packing materials e.g., tins, cartons, gunny bags, other materials etc.
- Details of wastages, spoilage, rejections and losses of packing materials, with reasons thereof. Scrap value of wastage, if any, should be suitably adjusted in respect of normal and abnormal losses.
- Wages and other expenses incurred in packing of products – both product-wise and size-wise.
- Proper allocation of packing expenses for various products, i.e., those which are covered by the Rules and other products.

Question.3 (b)

(i) As a Cost Auditor, describe different measures to rectify imbalance in production facilities. [5]

Answer.

Different measures for rectifying imbalances in production facilities could be listed as below:

- Outsource/ sub-contract outside the company that part of the job, which is restricting the production.
- Introduce shift working among the operatives.
- Replacing entire existing plant by a new automatic plant, in case there is consistent imbalance in the production facilities.
- Idle equipment should be sold so that entire attention can be focused on the critical equipment.
- Install balancing equipment with higher output potential.

(ii) A company is exporting 80% of its sales and 20% is domestic sale. Can this company be exempted from the mandatory cost audit? [3]

Answer.

The exemption from mandatory cost audit is available only to those 100% EOUs who are registered under the policy document as per the Foreign Trade Policy and which are functioning within the permissible approved limit as per the said Policy. The DTA (Domestic Tariff Area) sales should not exceed the permissible limits as per the policy in force.

If the percentage of domestic sales is within the DTA limit, the company will be exempted from mandatory cost audit. It may be noted that if DTA sales for any year exceeds the permissible limits, then the exemption from cost audit available to the unit shall be withdrawn and the unit will be subjected to cost audit in accordance with the provisions of applicable rules/orders starting with the year in which exemption stood withdrawn and for every subsequent year thereafter.

Question.3 (c)

State the significance of different forms in Companies (Cost Records and Audit) Rules, 2014? [8]

Answer:

Significance of different Forms –

CRA – 1 : Maintain Cost Records in Form CRA – 1.

Every company under rule 5 including all units and branches thereof, shall, in respect of each of its financial year commencing on or after the 1st day of April, 2014, maintain cost records in **Form CRA-1**.

CRA – 2 : Form of intimation of appointment of Cost Auditor by the Company to Central Government.

Every company referred to in rule 6(1) shall inform the cost auditor concerned of his or its appointment as such and file a notice of such appointment with the Central Government within a period of thirty days of the Board meeting in which such appointment is made or within a period of one hundred and eighty days of the commencement of the financial year, whichever is earlier, through electronic mode, in **Form CRA-2**, alongwith the fee as specified in Companies (Registration Offices and Fees) Rules, 2014.

CRA – 3 : Form of the Cost Audit Report.

Every cost auditor, who conducts an audit of the cost records of a company, shall submit the cost audit report along with his or its reservations or qualifications or observations or suggestions, if any, in **Form CRA-3**.

CRA – 4 : Form for filing Cost Audit Report with the Central Government.

Every company covered under rule 6 shall, within a period of thirty days from the date of receipt of a copy of the cost audit report, furnish the Central Government with such report alongwith full information and explanation on every reservation or qualification contained therein, in **Form CRA-4** alongwith fees specified in the Companies (Registration Offices and Fees) Rules, 2014.

Section C
Answer any three questions from this section.

Question.4 (a)

Why does demand curve slopes downward? List the methods which can be used to measure the Elasticity of Demand. [5+3]

Answer:

Demand curve slopes downward from left to right (Negative Slope).

There are many causes for downward sloping of demand curve:-

- Law of Diminishing Marginal utility - As the consumer buys more and more of the commodity, the marginal utility of the additional units falls. Therefore the consumer is willing to pay only lower prices for additional units. If the price is higher, he will restrict its consumption.
- Principle of Equi-Marginal Utility - Consumer will arrange his purchases in such a way that the marginal utility is equal in all his purchases. If it is not equal, they will alter their purchases till the marginal utility is equal.
- Income effect - When the price of the commodity falls, the real income of the consumer will increase. He will spend this increased income either to buy additional quantity of the same commodity or other commodity.
- Substitution effect - When the price of tea falls, it becomes cheaper. Therefore the consumer will substitute this commodity for coffee. This leads to an increase in demand for tea.
- Different uses of a commodity - Some commodities have several uses. If the price of the commodity is high, its use will be restricted only for important purpose. For e.g. when the price of tomato is high, it will be used only for cooking purpose. When it is cheaper, it will be used for preparing jam, pickle etc...
- Psychology of people - Psychologically people buy more of a commodity when its price falls. In other word it can be termed as price effect.
- Tendency of human beings to satisfy unsatisfied wants.

The elasticity of demand can be measured by using three methods.

- Price elasticity of demand
- Income elasticity of demand
- Cross elasticity of demand

Question.4 (b)

(i) Explain going rate pricing. [5]

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.

(ii) The cost function 'c' for the commodity 'q' is given by $C = q^3 - 4q^2 + 12q$ find Average Variable Cost and also find the value of q for which average variable cost is minimum. [3]

Answer

$C = q^3 - 4q^2 + 12q$

Average Variable Cost = q2 – 4q + 12 – ('y' say)

⇨ $\frac{d}{dp}(q^2 - 4q + 12) = 0$

⇨ $2q - 4 = 0$

⇨ $Q = 4/2 = 2$

⇨ $\frac{d^2y}{dx^2} = 2 > 0, \text{positive}$

⇨ Average Cost is minimum at q = 2

Question.4 (c)

Describe 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:

- 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.
- 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.
- 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.
- 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:

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

Question.4 (d)

(i) The demand function for a particular brand of Pocket Calculators is $P = 75 - 0.3Q - 0.05Q^2$. Find the consumer's surplus at the quantity (Q) of 15 calculators. [4]

Answer:

$P = 75 - 0.3Q - 0.05Q^2$
At $Q = 15$, $P = 75 - 0.3 \times 15 - 0.05 \times 15^2$
$= 59.25$ (on reduction)
Now $PQ = 59.25 \times 15 = 888.75$

$$\text{Consumer's surplus} = \int_0^{15} P\,dQ - PQ = \int_0^{15} \left(75 - 0.3Q - 0.05Q^2\right) dQ - PQ$$

$$= \left[75Q - 0.3\frac{Q^2}{2} - 0.05\frac{Q^3}{3} \right]_0^{15} - 888.75$$

$$= \left[75 \times 15 - 0.3 \times \frac{15^2}{2} - 0.05\frac{15^3}{3} \right] - 888.75$$

$$= 1035 - 888.75 = 146.25$$

Hence the consumer's surplus is 146.25

(ii) Calculate the trend values by the method of least squares from the data given below and estimate the sales for the year 2014.

Year	2010	2011	2012	2013	2014
Sales	105	111	120	129	135

[4]

Answer:

Calculation of Trend values by Least Squares Method

Year (t)	Sales Y	Time deviation(X)	XY	X^2	Trend values Y_c
2010	105	-2	-210	4	104.4
2011	111	-1	-111	1	112.2
2012	120	0	0	0	120.0
2013	129	+1	+129	1	127.8
2014	135	+2	+270	4	135.6
N= 5	**∑Y = 600**	**∑X = 0**	**∑XY= 78**	**∑X² = 10**	**∑Y_c = 600**

Equation of Trend line = $Y_C = a + bX \Rightarrow Y_C = a + (t-2012)$

Since X=0, $a = \sum Y/N = 120$

$b = \sum XY/ \sum X^2 = 7.8$

The equation of Straight line would be Y = 120 + 7.8X. The value of Y when X = 2014 or in terms of deviation X = +5

$Y_{2014} = 120 + (7.8 \times 5) = 120 + 39 = 159$

Trend value for 2010= 120 + (2010 – 2011) x 7.8 = 104.4

Similarly trend values for 2011, 2012 etc have been calculated.