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.)

SECTION A
Answer any two questions from this section.

1. Answer all questions.

(a) The following figures have been given for Profit and Sales from the accounts of ZEESLIN LTD.

Year	Sales (₹)	Profit (₹)
2011	2,00,000	20,000
2012	3,00,000	40,000

Calculate the sales required to earn a Profit of ₹ 50,000. **[2]**

Answer:

$$P/V Ratio = \frac{Change\ in\ Profit}{Change\ in\ SAles} x100 = \frac{20,000}{1,00,000} x100 = 20\%$$

Fixed Cost = Sales x P/V Ratio – Profit = 2,00,000 x 0.2 – 20,000
= ₹ 20,000

Sales required to earn a desired Profit of ₹ 50,000
= (Fixed Cost + Desired Profit) / P/V Ratio
= (₹ 20,000 + 50,000) ÷ 0.2 = ₹ 3,50,000

(b) What are the limitations of Inter-firm comparison? **[2]**

Answer :
Limitations of Inter firm comparison are:

(i) Top management may not be convinced of the utility of inter-firm comparison.
(ii) Reluctance to disclose data which a concern considers to be confidential.
(iii) A sense of complacence on the part of the management who may be satisfied with the present level of profit.
(iv) Absence of a proper system of cost accounting so that the costing figures supplied may not be relied upon for comparison purposes.
(v) Non-availability of a suitable base for comparison.

(c) The following information is given for the next year:
Budgeted Sales = 5,00,000 units
Finished Goods: Closing Stock = 1,50,000 units; Opening Stock = 80,000 units.
Equivalent units of WIP: Closing Stock= 60,000 units; Opening Stock = 50,000units.
Calculate the number of equivalent units produced. **[2]**

Answer :

Sales + Cl. Stk – Op. Stk = Production
FG: 500000 + 150000 – 80000 = 5,70,000 Units
WIP: + 60,000 – 50,000 = 10,000 Units
Number of equivalent units produced = 5,80,000 Units

(d) Distinguish between Indifference Point and Break-Even Point with regard to their (i) Definition, and (ii) Purpose. [2+2=4]

Answer :

With regard to definition:

Indifference point is the level of sales at which Total Costs and profits of two points are equal.

Break-even Point is the level of sales at which total sales revenue is equal to total costs and there is neither profit nor loss to the firm. At BEP, total contribution equals fixed cost.

Purpose:

Indifference point is used to choose between two alternative options of achieving the same objective – Break-even point is used for profit planning.

(e) The Companies (Cost Records and Audit) Rules, 2014 covers "Generation, transmission, distribution and supply of electricity" with no corresponding CETA Heading. Whether the Quantitative Information and Abridged Cost Statement in respect of Electricity are required to be reported under the Service Sector in the absence of a CETA Heading? [2]

Answer:

The reporting of electricity generation activity will be considered under "Manufacturing" and should be shown under CETA Heading 2716. Transmission and Distribution activities should be reported under the "Service Sector".

(f) Whether overall annual Turnover/individual turnover definition will include other operational income like Job work income, scrap sale, trading turnover, export benefits, sales of services etc.? [2]

Answer:

The Turnover shall include other operational income like Job work income, scrap sale, trading turnover, export benefits, sales of services etc.

(g) Find the Elasticity of Demand for [3]

$$P = \frac{4}{(2x+1)^2}$$

Answer :

$$P = \frac{4}{(2x+1)^2} = 4\,(2x+1)^{-2}$$

$$\frac{dp}{dx} = 4 \times -2 \times (2x+1)^{-3} = -8\,(2x+1)^{-3}$$

$$\frac{dx}{dp} = -\frac{1}{8(2x+1)^{-3}}$$

$$= -\frac{1}{8}(2x+1)^3 = -\frac{(2x+1)^3}{8}$$

$$\frac{P}{x} = \frac{4}{x(2x+1)^2}$$

Elasticity of demand (E_p) =

$$\frac{(2x+1)^3}{8} \times \frac{4}{x(2x+1)^2} = \frac{2x+1}{2x}$$

(h) What are the components of time series ? **[3]**

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.

2. (a) (i)

XYZ Ltd. can produce 4,00,000 units of a product per annum at 100% capacity. The variable production costs are ₹ 40 per unit and the variable selling expenses are ₹ 12 per sold unit. The budgeted fixed production expenses were ₹ 24,00,000 per annum and the fixed selling expenses were ₹ 18,00,000. During the year ended 31st March, 2015, the company worked at 80% of its capacity. The operating data for the year are as follows:

Production	**3,20,000 units**
Sales @ ₹ 80 per unit	**3,10,000 units**
Opening stock of finished goods	**40,000 units**

Fixed production expenses are absorbed on the basis of capacity and fixed selling expenses are recovered on the basis of period.

You are required to prepare Statements of Cost and Profit for the year ending 31st March, 2015:
1) On the basis of marginal costing
2) On the basis of absorption costing. **[5+5=10]**

Answer:

1. Statement of Cost and Profit under Marginal Costing for the year ending 31st March, 2015

Output = 3,20,000 units

Particulars	Amount (₹)	Amount (₹)
Sales: 3,10,000 units @ ₹ 80		2,48,00,000
Less: Marginal cost/variable cost:		

Variable cost of production (3,20,000 x ₹ 40)	1,28,00,000	
Add: Opening stock 40,000 units @ ₹ 40	16,00,000	
	1,44,00,000	
Less: Closing Stock [(3,20,000 + 40,000 - 3,10,000) @ ₹ 40		
= 50,000 units @ ₹ 40]	20,00,000	
Variable cost of production of 3,10,000 units	1,24,00,000	
Add: Variable selling expenses @ ₹ 12 per unit	37,20,000	1,61,20,000
Contribution (sales - variable cost)		86,80,000
Less: Fixed production cost	24,00,000	
Fixed selling expenses	18,00,000	42,00,000
Actual profit under marginal costing		44,80,000

(2) Statement of Cost and Profit under Absorption Costing for the year ending 31st March, 2015

Output = 3,20,000 units

Particulars	Amount (₹)	Amount (₹)
Sales: 3,10,000 units @ ₹ 80		2,48,00,000
Less: Cost of sales:		
Variable cost of production(3,20,000 @ ₹ 40)	1,28,00,000	
Add: Fixed cost of production absorbed 3,20,000 units @ ₹ 6(1)	19,20,000	
	1,47,20,000	
Add: Opening Stock: 40,000 × $\frac{1,47,20,000}{3,20,000}$	18,40,000	
	1,65,60,000	
Less: Closing Stock: 50,000 × $\frac{1,47,20,000}{3,20,000}$	23,00,000	
Production cost of 3,10,000 units	1,42,60,000	
Selling expenses:		
Variable: ₹ 12 × 3,10,000 units	37,20,000	
Fixed	18,00,000	1,97,80,000
Unadjusted profit		50,20,000
Less: Overheads under absorbed(2):		
Fixed production overheads		4,80,000
Actual profit under absorption costing		45,40,000

Workings:

(1) Absorption rate for fixed cost of production = $\frac{₹24,00,000}{4,00,000 \text{ units}}$ = ₹ 6 per unit

(2) Fixed production overhead under absorbed = ₹ (24,00,000 - 19,20,000) = ₹ 4,80,000.

2. (a) (ii)

There are two warehouses for storing finished goods in a factory. Warehouse A is at a distance of 10 km. and warehouses B at a distance of 15 km. from the factor A fleet of 5-tonne lorries is engaged in transporting the finished goods from the factory. The records show that the lorries average a speed of 30 kms. per hour when running and regularly take 40 minutes to load at the factory. At warehouse A unloading takes 30 minutes per load while at warehouse's B it takes 20 minutes per load.

Drivers wages, depreciation, insurance and taxes amount to ₹ 18 per hour operated. Fuel, oil, tyres and maintenance cost ₹ 2.40 per kilometre. You are required to draw up a statement showing the cost per tonne kilometre for carrying the finished goods to the two warehouses.

[10]

Solution:

For preparing an operating cost statement, it is first necessary to arrive at the operating time required for both the warehouses.

Operating Time

Warehouse 'A'	Minutes	Warehouse 'B'	Minutes
For covering 10 Km. @ 30 kms. per hour	20	For covering 15 Km.	30
For return journey	20	For return journey	30
Loading time	40	Loading time	40
Unloading time	30	Unloading time	20
Total operating time (minutes)	110	Total operating time (minutes)	120
	Or 1 hours 50 minutes		Or 2 hours

Statement showing the operating cost per tonne-km

Warehouse 'A'		Warehouse 'B'	
Tonne-km (5 tonne x 10 km)	50	Tonne-km. (5 tonne x 15 km.)	75
Running charges per km.	₹ 2.40	Running charges per km.	₹ 2.40
Standing charges per hour	₹ 18.00	Standing charges per hour	₹ 18.00

Operating Costs

Warehouse 'A'		Warehouse 'B'	
Running expenses 20 kms. x ₹ 2.40	₹ 48	Running expenses 30 kms. x ₹ 2.40	₹72
Standing charges 1 hr. 50 mts. @ ₹ 18	33	Standing charges (2 hour x ₹ 18)	36
Total operating costs	81	Total operating costs	108
Operating cost per Tonne-km. ₹ 81 ÷ 50	₹ 1.62	Operating cost per tonne km. ₹ 108 ÷ 75	₹ 1.44

2. (b) (i)

Titan Engineering is operating at 70 per cent capacity and presents the following information:

Break-even point	**₹ 200 crores**
P/V Ratio	**40 per cent**
Margin of safety	**₹ 50 crores**

Titan's management has decided to increase production to 95 percent capacity level with the following modifications:

(i) The selling price will be reduced by 8 per cent.
(ii) The variable cost will be reduced by 5 per cent on sales.
(iii) The fixed cost will increase by ₹ 20 crores, including depreciation on additions, but excluding interest on additional capital.
(iv) Additional capital of ₹ 50 crores will be needed for capital expenditure and working capital.

Required

I. Indicate the sales figures, with the working, that will be needed to earn ₹ 10 crores over and above the present profit and also meet 20 per cent interest on the additional capital?
II. What will be the revised?
  1. Break-even point
  2. P/V Ratio
  3. Margin of safety. **[4+3+3=10]**

Solution.

Working Notes:

Total Sales = Break-even Sales + Margin of Safety = ₹ 200 crores + ₹ 50 crores = ₹ 250 crores
P/V Ratio = 40%
Variable Cost = 60% of sales = ₹ 250 crores x 60% = ₹ 150 crores
Fixed Cost = Break-even sales x P/V ratio = ₹ 200 crores x 40% = ₹ 80 crores
Total Cost = ₹ 150 crores + 80 crores = ₹ 230 Crores
Profit = ₹ 250 crores - ₹ 230 crores = ₹ 20 crores

I. Revised Sales

	(₹ in crores)
Present fixed cost	80
Increase in fixed cost	20
Interest @ 20% on additional capital of ₹ 50 crores	10
Total Revised Fixed Cost	110
Assuming that present selling price is	= ₹ 100.00
Revised selling price will be (8% less)	= 92.00
New variable cost (reduced from 60% to 55%)	= 50.60
Contribution	41.40

New P/V ratio (41.40/92.00) × 100 = 45%
Required Contribution = ₹ 110 crores + ₹ 50 crores = ₹ 160 crores
Required Sales = ₹ (110 + 20 + 10)crores ÷ 45% = ₹ 311.11 crores

II. (1) Revised B.E. point = ₹ 110 crores ÷ 45% = ₹ 244.44 crores
(2) Revised P/V ratio = 45%
(3) Revised margin of safety = Revised Sales- Revised B.E. Sales = ₹ 311.11 crores - ₹ 244.44 crores = ₹ 66.67 crores.

2. (b) (ii)

A product passes through three process - A, B and C. 10,000 units at a cost of ₹ 1.10 were issued to process A. The other direct expenses were as follows:

	Process A	**Process B**	**Process C**
Sundry materials	**₹ 1,500**	**₹ 1,500**	**₹ 1,500**
Direct labour	**4,500**	**8,000**	**6,500**
Direct expenses	**1,000**	**1,000**	**1,503**

The wastage of process A was 5% and in process B 4%. The wastage of process A sold at ₹ 0.25 per unit and that of B at ₹ 0.50 per unit and that of C at ₹ 1.00 per unit.

The overhead charges were 160% of direct labour. The final product was sold at ₹ 10 per unit fetching a profit of 20% on sales. Find out the percentage of wastage in process C. [10]

Solution:

Process A A/c

	Units	Rate	Amount		Units	Rate	Amount
To Units introduced	10,000	1.10	11,000	By Wastage A/c (5%)	500	0.25	125
" S. Material			1,500	" Process B	9,500	2.639	25,075
" D. Labour			4,500				
" D. Expenses			1,000				
" Overhead (160% of			7,200				

D.L.)							
	10,000		25,200		10,000		25,200

Process B A/c

	Units	Rate	Amount		Units	Rate	Amount
To Process A	9,500	2.639	25,075	By Wastage A/c (4%)	380	0.50	190
" S. Material			1,500	" Process C A/c	9,120	5.283	48,185
" D. Labour			8,000				
" D. Expenses			1,000				
" Overhead (160% of D.L.)			12,800				
	9,500		48,375		9,500		48,375

Process C A/c

	Units	Rate	Amount		Units	Rate	Amount
To Process B A/c	9,120	5.283	48,185	By Wastage A/c (7.63%) of 9,120	696*	1.00	696
" S. Material			1,500	By Finished Stock A/c	8,424	8.00	67,392
" D. Labour			6,500				
" D. Expenses			1,503				
" Overhead (160% of D.L.)			10,400				
	9,120		68,088		9,120		68,088

Calculation of wastage

Selling Price per unit	₹ 10.00
Less: Profit (20% of S.P.)	2.00
Cost price	8.00

Suppose wastage = W units
8 (9,120 - W) = 68,088 - (W x ₹ 1) or W = 696
Wastage is 696 units
Wastage as % of input (696 ÷ 9120) × 100 = 7.63%.

2. (c) (i)

The following information pertains to labour force of UDHHAMI LTD. engaged in a week of November 2014 for a JOB-PH.

	Skilled	Semi-skilled	Unskilled	Total
No. of workers in standard gang:	**16**	**12**	**8**	**36**
Standard rate per hour (₹)	**60**	**30**	**10**	**--**
No. of workers in actual gang:	**---**	**---**	**---**	**--**
Actual rate per hour (₹)	**70**	**20**	**20**	**--**

In a 40 hours week, the gang produced 1080 standard hours. The actual number of semi-skilled workers is two times of the actual number of unskilled workers. Total number of actual workers are same as standard gang. The rate variance of semi-skilled workers is ₹6400 (F).

You are required to find the following:
1. **The actual number of workers/labours in each category.**
2. **Labour gang (mix) variance.**
3. **Labour sub-efficiency variance.**
4. **Labour rate variance.**

5. Labour cost variance.

[(3+1x3)+4]=10

Answer:

Working Notes:

UDHHAMI LTD.

1. Actual no. of workers:
Rate variance = AH (SR – AR)
Rate variance for semi-skilled workers = AH (30 – 20) = ₹ 6400 (F)
AH = 6400/10 = 640 hours of semi-skilled workers
Actual semi skilled = 2 × Actual unskilled workers = 640 hours
Actual unskilled = 640/2 = 320 hours
Actual skilled hours = Total actual hours – (Semi skilled + unskilled)
= 36 × 40 – (640 + 320) = 1440 – (640 +320) = 480 hours.
Hence, Actual No. of workers = skilled : 480 / 40 = 12
Semi skilled: 640/40 = 16 and unskilled : 320/40 = 8 workers

Total standard hours:

Skilled- 30x16 - 480 hrs: Semi Skilled - 30x12 = 360 hours and

Unskilled - 30x8 = 240 hrs = Total 1080 hours

Weekly standard gang hours = 1080/36 = 30 hours

Revised standards hrs (RSH)

Skilled - 1440 x (480/1080) = 640 hours; semi skilled- 1440x(360/1080) = 480 hrs.

Unskilled – 1440 x (240/1080) = 320 hour

TSC= SR×SH ₹		**TAC= AR × AH** ₹	**SR × RSH** ₹	**SR × AH** ₹
Skilled: 60 x 480	= 28800	70x480 = 33600	60x640 = 38400	60x480 = 28800
Semi skilled: 30 x 360	=10800	20x640 = 12800	30x480 = 14400	30x640 = 19200
Unskilled: 10 x 240	= 2400	20x320 = 6400	10x320 = 3200	10x320 = 3200
Total	42000	52800	56000	51200

2. Labour Gang (Mix) variance = SR (RSH-AH) or (SR x RSH)- (SRxAH)

   = 56000-51200 = ₹ 4800 (FAV)

3. Labour sub-efficiency variance = SR (SH- RSH) or (SR x SH) - (SR x RSH)

   = 42000- 56000 = ₹ 14000 (ADV)

4. Labour rate variance = AH (SR-AR) or (AH x SR) - (AH x AR)

   = 51200- 52800 = ₹ 1600 (ADV)

5. Labour cost variance = TSC-TAC or (SRxSH) - (AR x AH)

   = ₹ 42000- ₹ 52800 = ₹ 10800 (ADV)

2. (c) (ii)

GREEN ENVIRON LTD. has two divisions—M and N. Division-M manufactures product A-15 which it sells in outside market as well as to Division-N which processes it to manufacture Z-25. The Manager of Division-N has expressed the opinion that transfer price is too high. The two Divisional Managers are about to enter into discussions to resolve the conflict and Manager of Division-M to supply him with some information prior to discussions.

Division-M has been selling 50,000 units to outsiders and 10,000 units to Division-N, all at ₹ 25 per unit. It is not anticipated that these demand will change. The variable cost is ₹ 15 per unit and the fixed costs are ₹ 3 lakhs. Divisional investment in assets is ₹12 lakhs.

The Manager of Division-M anticipates that Division-N will want a transfer price of ₹ 22. If he does not sell to Division-N, ₹ 40,000 of fixed costs and ₹ 2,00,000 of assets can be avoided. The Manager of Division-M would have no control over the proceeds from the sale of the assets and is judged primarily on his rate of return.

Required:

(1) Should the Manager of Division-M transfer its products at ₹ 22 to Division-N?

(2) What is the lowest price that the Division-M should accept? [8+2=10]

Answer:

GREEN ENVIRON LTD

(i)

Comparative Profitability Statement of Division M

(Figures in ₹)

Particulars	Alternative Situations		
	Sell at ₹ 25	Transfer at ₹22	Don't transfer
Sales Revenue : Market Sales (50,000 units x ₹ 25)	12,50,000	12,50,000	12,50,000
Transfer to Division – N (10,000 units)	2,50,000	2,20,000	----
Total (A)	15,00,000	14,70,000	12,50,000
Variable Cost (at ₹ 15 / unit)	9,00,000	9,00,000	7,50,000
Fixed Cost	3,00,000	3,00,000	2,60,000
Total (B) (₹)	12,00,000	12,00,000	10,10,000
Total Profit (A - B) (₹)	3,00,000	2,70,000	2,40,000
Total Assets (₹)	12,00,000	12,00,000	10,00,000
ROI (Percentage)	25%	22.50%	24%

Comments : The manager of Division M should not agree to sell at ₹ 22 per unit, as it lowers down its rate of return (ROI) i.e. (25% to 22.50%)

(ii) The lowest transfer price acceptable to Division M is one, which maintains its rate of return of 24% (ROI without selling to Division N):
= (Total Sales Revenue - Total Cost) / Total Assets = 0.24
or, [(₹ 12,50,000 + 10,000 x Transfer Price (TP)) – 12,00,000] ÷ ₹ 12,00,000 = 0.24
or, 10,000 TP = 2,88,000 – 50,000 = 2,38,000
or, (Transfer Price) TP = 2,38,000 ÷ 10,000 = 23.80 i.e. ₹ 23.80.
The lowest transfer price acceptable to Division - M is ₹ 23.80 per unit.

Section B

Answer any two questions from this section.

3. (a)

(i) Is maintenance of cost accounting records mandatory for a multi-product company where all the products are not covered under the Rules even if the Turnover of the individual product/s that are covered under the Rules is less than rupees thirty five crores? [3]

Answer:

The Rules provide threshold limits for the company as a whole irrespective of whether all its products are as per the prescribed industry/sector provided under Table A or Table B. The Rules do not provide any minimum product specific threshold limits for maintenance of cost accounting records and consequently the company would be required to maintain cost accounting records for the products covered under Table-A or Table-B or both even if the turnover of such products is below rupees thirty five crores.

(ii) Is there any obligation on the part of cost auditor to report offence of fraud being or has been committed in the Company by its officers or employees? [5]

Answer:

Sub-rule (7) of Rule 6 of the Companies (Cost Records and Audit) Rules 2014 states that "the provisions of sub-section (12) of section 143 of the Act and the relevant rules made thereunder shall apply mutatis mutandis to a cost auditor during performance of his functions under section 148 of the Act and these rules".

As per sub-section (12) of section 143 of the Companies Act 2013, extract of which is given above, it is obligatory on the part of cost auditor to report offence of fraud which is being or has been committed in the company by its officers or employees, to the Central Government as per the prescribed procedure under the Rules.

As per the proviso to above sub-section, it has been stated that in case of a fraud involving lesser than the specified amount, the auditor shall report the matter to the audit committee constituted under section 177 or to the Board in other cases within such time and in such manner as may be prescribed.

3. (b)

(i) Whether separate Form CRA-2 is required to be filed by a company having two or more different types of products covered under cost audit? [3]

Answer:

CRA-2 Form (intimation for appointment of cost auditor to Central Government) has replaced the earlier Form 23C (application seeking approval for appointment of cost auditor). A single Form CRA-2 is required to be filed providing details of the sectors/industries covered under cost audit and details of cost auditor. For Companies appointing multiple cost auditors, only one single Form CRA-2 is required to be filed. Provision has been made in the Form to accommodate details of multiple cost auditors.

(ii) What is the procedure to be followed for fixing the remuneration of a cost auditor? [5]

Answer:

Rule 14 of the Companies (Audit and Auditors) Rules, 2014 has laid down the procedure of appointment and fixing the remuneration of a cost auditor. It states as follows:

Remuneration of the Cost Auditor: For the purpose of sub-section (3) of section 148,—

I. in the case of companies which are required to constitute an audit committee—

(i) the Board shall appoint an individual, who is a cost accountant in practice, or a firm of cost accountants in practice, as cost auditor on the recommendations of the Audit committee, which shall also recommend remuneration for such cost auditor;

(ii) the remuneration recommended by the Audit Committee under (i) shall be considered and approved by the Board of Directors and ratified subsequently by the shareholders;

II. in the case of other companies which are not required to constitute an audit committee, the Board shall appoint an individual who is a cost accountant in practice or a firm of cost accountants in practice as cost auditor and the remuneration of such cost auditor shall be ratified by shareholders subsequently.

3. (c)

(i) What is the procedure for appointment of cost auditor under the Companies Act, 2013? [6]

Answer:

The cost auditor is to be appointed by the Board of Directors on the recommendation of the Audit Committee, where the company is required to have an Audit Committee. The cost auditor proposed to be appointed is required to give a letter of consent to the Board of Directors. The company 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**, along with the fee as specified in Companies (Registration Offices and Fees) Rules, 2014.

Any casual vacancy in the office of a cost auditor, whether due to resignation, death or removal, shall be filled by the Board of Directors within thirty days of occurrence of such vacancy and the company shall inform the Central Government in Form CRA-2 within thirty days of such appointment of cost auditor.

(ii) Revised Form CRA-2 has been made available by the Ministry of Corporate Affairs conforming to the Companies (Cost Records and Audit) Rules, 2014 on 31st December, 2014. What are the required attachments to Form CRA-2? [2]

Answer:

The Form has provided an attachment button for attachment of certified copy of the Board Resolution appointing the cost auditor. The consent letter of the cost auditor should be attached as optional attachment.

Section C
Answer any three questions from this section.

4. (a) (i)

How is the price determined by a firm under Oligopoly? [4]

Answer:

PRICE DETERMINATION UNDER OLIGOPOLY:

Price can be determined in three ways under oligopoly:
1. Independent pricing;
2. Pricing under collusion;
3. Price Leadership

1. **Independent pricing:** If there is a product differentiation under oligopoly each firm can act as a monopoly and fixes the price independently. Therefore the firm may determine its price in that way where it gets maximum profits. If there is no product differentiation, it is difficult to know the price determination in accurate manner the firm may compete each other and finally they may fix the common reasonable price which cannot be changed.

2. **Pricing Under collusion:** Most of the firms have the opinion that independent price determination leads to uncertainly. To avoid this defect there is a tendency among the oligopoly firm to act collectively by collusion. In this method these firms may make cartle arrangement. The centralized cartle determines the output produce by different firms and the price is also determined which is the most acceptable by all firms.

3. **Price leadership:** If the other firms follow the price which is determined by one firm in oligopoly then we can say that there is a dominant firm or the firm with low costs or well established old firm- may take this leadership and fixes the price.

4. (a) (ii)

The total cost of daily output of Q tonnes of coal is ₹ ($\frac{1}{10}$ q3 - 3q2 + 50q). What is the value of q, when average cost is minimum? Verify that at this level, Average Cost = Marginal Cost. **[2+2=4]**

Answer:

A. C. = $\frac{\text{T.C.}}{\text{quantity}} = \frac{1}{q}\left(\frac{1}{10}q3 - 3q2 + 50q\right) = \frac{1}{10}q^2 - 3q + 50$

$\frac{d(A.C)}{dq} = \frac{1}{5}q - 3$. For max. or min, $\frac{d(A.C)}{dq} = 0$

i.e., $\frac{1}{5}q - 3 = 0$ or, $q = 15$

Again, $\frac{d^2(AC)}{dq^2} = \frac{1}{5} > 0$. Minimum

So, at q = 15, average cost is minimum.

M.C. = $\frac{d}{dq}$(T.C.) = $\frac{d}{dq}\left(\frac{1}{10}q^3 - 3q^2 + 50q\right) = \frac{3}{10}q^2 - 6q + 50$.

Now by question AC = MC

i.e., $\frac{1}{10}q^2 - 3q + 50 = \frac{3}{10}q^2 - 6q + 50 \Rightarrow \frac{2}{10}q^2 - 3q = 0$

$\Rightarrow q\left(\frac{1}{5}q - 3\right) = 0 \Rightarrow \frac{q}{5} - 3 = 0$ or, $q = 15$.

4. (b)

List the factors to be considered while setting the price of a PRODUCT. **[8]**

Answer:

The factors to be considered while setting the price of a product are enumerated below:

(1) **Target customers:** Price of product is depend on the capacity of buyers to buy at various prices, in other words, influence of price elasticity of demand will be examined.
(2) **Cost of the product:** Pricing is primarily based on how much it costs to produce and market the product, i.e., both production and distribution cost.
(3) **Competition:** Severe competition may indicate a lower price than when there is monopoly or little competition.
(4) **The law:** Government authorities place numerous restrictions on pricing activities.
(5) **Social responsibility:** Pricing affects many parties, including employees, shareholders and the public at large. These should be considered in pricing.
(6) **Market position of the firm:** The position of the market may also influence the pricing decision of the firm. It is only why the different producers of identical products sell their products at different prices.
(7) **Distribution channel policy:** The prices of products will also depend upon the policy regarding distribution channel. The longer the channel, the higher would be the distribution costs and consequently higher the prices.
(8) **Price elasticity of Demand:** Price elasticity refers to consequential change in demand due to change in price of the commodity. It is the relative responsiveness to the changes in price. As there is an inverse relationship between price and demand for product, the demand will increase with fall in price.
(9) **Economic environment:** In recession, prices are reduced to a sizeable extend to maintained the level of turnover. On the other hand, prices are charged higher in boom period to cover the increasing cost of production and distribution.

4. (c) (i)

The efficiency (E) of a small manufacturing concern depends on the number of workers (W) and is given by $10E = \frac{-W^3}{40} + 30W - 392$, find the strength of the worker, which give maximum efficiency. 3

Solution:

Given $10E = \frac{-W^3}{40} + 30W - 392$

Efficiency (E) $= \frac{-W^3}{400} + 3W - \frac{392}{10}$

$\frac{dE}{dW} = -\frac{1}{400} \times 3W^2 + 3 = 0$

- $3W^2 = 1200$
- $W^2 = 400$
- $W = 20$

$\frac{d^2E}{dw^2} = -\frac{6w}{400}$

$\therefore \frac{d^2e}{dw^2}$ at $w = 20 = \frac{-6(20)}{400} = \frac{-6}{20} < 0$

$\therefore$ Maximum efficiency at $w = 20$.

4. (c) (ii)

State the factors involved in Demand Forecasting. [5]

Answer:

Factors involved in Demand Forecasting:

(i) Time factor: Forecasting may be done for short-term or long-term. Short-term forecasting is generally taken for one year while long-term forecasting covering a period of more than 1 year.

(ii) Level factor: Demand forecasting may be undertaken at three different levels.
   a) Macro level: It is concerned with business conditions over the whole economy.
   b) Industry level: Prepared by different industries.
   c) Firm-level: Firm-level forecasting is the most important from managerial view point.

(iii) General or specific purpose factor: The firm may find either general or specific forecasting or both useful according to its requirement.

(iv) Product: Forecasting varies type of product i.e., new product or existing product or well established product.

(v) Nature of the product: Goods can be classified into
   (i) consumer goods and (ii) producer goods.
   Demand for a product will be mainly dependent on nature of the product. Forecasting methods for producer goods and consume/ goods will be different accordingly.

(vi) Competition: While making forecasting, market situation and the product position in particular market should be analyzed.

(vii) Consumer Behavior: What people think about the future, their own personal prospects and about products and brands are vital factors for firm and industry.

4. (d) (i)

BURNET LTD. sells output in a perfectly Competitive Market. The average variable cost function of Burnet Ltd. is : AVC = 300 – 40Q +2Q^2.

Burnet Ltd. has an obligation to pay ₹500 irrespective of the output produced. What is the price below which Burnet Ltd. has to shut down its operation in the short run? [4]

Answer:

Burnet Ltd. has to shut down its operation, if the price is less than average variable cost. Under perfect competition,

Equilibrium 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. Therefore, the equilibrium price at which the firm will shut down is the minimum AVC i.e. average variable cost.

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

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

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

i.e. Q = 10 units.

When the company 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 company has to shut down its operation under short run.

4. (d) (ii)

HEMA ELECTRICALS an electronics firm assumes a cost function $C(x) = x(\frac{x^2}{10} + 200)$, where 'x' is a monthly output in thousands of units. Its revenue function is given by $R(x) = x(1100 - 1.5x)$. Find:

I. the output required per month to make the Marginal Profit = 0; and
II. the Profit at this level of output. [3+1 = 4]

Answer:

(I) Profit = $R(x) - C(x) = 1100x - 1.5x^2 - \frac{x^3}{10} - 200x$

$= -\frac{x^3}{10} - 1.5x^2 + 900x$ (Say P)

Marginal Profit (MP) = $\frac{dp}{dx} = -\frac{3x^2}{10} - 3x + 900$

Marginal Profit (MP) = O (given)

$-\frac{3x^2}{10} - 3x + 900 = 0$

$\Rightarrow -3x^2 - 30x + 9000 = 0$

$\therefore x^2 + 10x - 3000 = 0$

$x^2 + 60x - 50x - 3000 = 0$

or, $x(x + 60) - 50(x + 60) = 0$

or, $(x-50)(x + 60) = 0$ Either $x = 50$ or $x = -60$

[Since units cannot be negative rejecting the negative value (-60)]
The required output level = 50 (thousand) units.

(II) Total Profit at output x = 50 (thousand) units.

$-\frac{x^3}{10} - 1.5x^2 + 900x$

$= -\frac{125000}{10} - 3750 + 45000 =$ ₹ 28750 Thousand