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.)

1. Answer all questions. **[2x10=20]**

(a) The cost data pertaining to Product "X" of Xee Ltd. are as follows:

Maximum capacity	**30,000 units**
Normal capacity	**15,000 units**
Increase in inventory	**1,880 units**
Variable cost per unit	**₹ 12**
Selling price per unit	**₹ 50**
Fixed manufacturing overhead costs	**₹ 3,60,000**

If the profit under Absorption costing method is ₹ 1,01,000, Calculate the profit under Marginal costing.

Answer

Fixed cost per unit = ₹ 3,60,000 / 15,000 units = ₹ 24
Profit under absorption costing = ₹ 1,01,000
Adjustment of fixed manufacturing overhead costs of increased inventory = 1,880 units x ₹ 24 = ₹ 45,120
Profit under marginal costing = ₹ 1,01,000 – ₹ 45,120 = ₹ 55,880

(b) A Ltd. is preparing its cash budget for the period. Sales are expected to be ₹ 1,00,000 in April 2015, ₹2,00,000 in May 2015, ₹ 3,00,000 in June 2015 and ₹ 1,00,000 in July 2015. Half of all sales are cash sales, and the other half are on credit. Experience indicates that 70% of the credit sales will be collected in the month following the sale, 20% the month after that, and, 10% in the third month after the sale. Calculate the budgeted collection for the month of July 2015.

Answer:

Collection from

July 2015 cash sales will be half of total sales or	₹ 50,000
From April ₹ 50,000 of credit sales, collection should be 10% or	₹ 5,000
From May ₹ 1,00,000 of credit sales, collections should be 20% or	₹ 20,000
From June ₹ 1,50,000 of credit sales, collection will be 70% or	₹ 1,05,000

Thus total collections will amount to ₹ 1,80,000

(c) During the month of March, 560 kg. of material was purchased at a total cost of ₹ 15,904. The stocks of material increased by 15 kg. It is the company's policy to value the stocks at standard purchase price. If the material price variance was ₹ 224 (A). Estimate the standard price per kg. of material.

Answer:

Actual cost	₹ 15,904
Less: adverse material price variance	224
Actual purchases at standard price	₹ 15,680
Standard price $= \frac{₹15,680}{560kg.}$	=₹ 28

(d) List the non-cost considerations in a shut-down or continue decision.

Answer:

The non-cost considerations are as follows:

- Loss of market share to competition
- Loss of goodwill and market image.
- Strain in labour management relations.
- Availability of skilled labour on re-opening.
- Risk of obsolescence of machinery.
- Arrangement of finance for compensation payable on retrenchment, if any.

(e) 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?

Answer:

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

(f) Whether Financial Position and Ratio Analysis [Part D, Para 4] is to be computed based on Cost record data or audited financial data?

Answer:

Financial Position and Ratio Analysis is to be computed based on audited financial accounts. This reporting Para has been aligned with the nomenclature of Schedule III of the Companies Act, 2013.

(g) How to identify products covered under 4-digit CETA Code as mentioned in the Rules?

Answer:

Central Excise Tariff Act Heading has been defined in Rule 2(aa) of Companies (Cost Records and Audit) Rules 2014. It states "Central Excise Tariff Act Heading" means the heading as referred to in the Additional Notes in the First Schedule to the Central Excise Tariff Act, 1985 [5 of 1986].

First Schedule to the Central Excise Tariff Act, 1985 states – "heading" in respect of goods, means a description in list of tariff provisions accompanied by a four-digit number and includes all sub-headings of tariff items the first four-digits of which correspond to that number.

(h) What are the types of elasticity of Demand?

Answer:

Elasticity of demand is of three types:
(i) Price elasticity of demand
(ii) Income elasticity of Demand.
(iii) Cross elasticity of demand

(i) State the term Temporary Monopoly.

Answer:

This situation occurs more frequently. A firm invents a new products and places it on the market. For quite some time the demand will remain low, as consumers are not yet aware of the product. The firm will enjoy a de facto monopoly under the protection of its patents. Then, as the product enters into common usage, demand develops rapidly and additional firm try to enter the market. They develop new production methods. Gradually prices and production techniques tend to stabilize. So at the end, the market evolves towards an ordinary competitive one. A firm which invents a new product must determine a strategy relation to prices and production which leads to a maximum effective income.

(j) The Demand and Supply function under perfect Competition are $y=16-x^2$ and $y=2x^2+4$ respectively. Find the Market Price.

Answer:

Under Perfect Competition Market Price is: Demand = Supply i.e.
$16 - x^2 = 2x^2 + 4$
Or $16 - x^2 - 2x^2 - 4 = 0$
Or $-3x^2 + 12 = 0$
Or $-3x^2 = -12$
$x^2 = 12/3 = 4$
$x = \pm 2$
i.e. 2 or -2 (since Quantity / units cannot be negative, rejecting the negative value (-2)

Market Price $y = 16 - x^2$
$= 16-(2x2)=16-4 =12$ (when x = + 2)

SECTION A
Answer any two questions from this section.

2. (a)
(i) State the problems associated with Throughput Accounting. **3**

(ii) The share of total production and the cost-based fair price computed separately for each of the four units in industry are as follows:

(Amount in ₹)

Units	A	B	C	D
Share of Production (%)	40	25	20	15
Direct Material	300	360	340	380
Direct Labour	200	240	280	320
Depreciation	600	400	320	200
Other Overheads	600	600	560	480
	1,700	1,600	1,500	1,380
20% Return on Capital Employed	1,260	860	700	460
FAIR PRICE	2,960	2,460	2,200	1,840
Capital Employed per unit				
Net Fixed Assets (₹ per unit)	6,000	4,000	3,200	2,000
Working Capital (₹ per unit)	300	300	300	300

Total Capital (₹ per unit)	6,300	4,300	3,500	2,300

Required:

What should be the uniform price fixed for the product of the industry? 5

(iii) MAGATRON LTD. produces and sells four products A, B, C and D. Details of the four products and relevant information are given below for week ended March 29, 2015:

Products	A	B	C	D
Output (units)	120	100	80	120
Cost per unit (₹)				
Direct Material	40	50	30	60
Direct Labour	28	21	14	21
Machine-hours (per unit)	4	3	2	3

The four products are similar and are usually produced in production runs of 20 units and sold in batches of 10 units.

The production overheads during the period are as follows:

Particulars	₹
Factory works expenses	20,860
Set up costs	10,500
Stores receiving	7,200
Inspection/Quality control	4,200
Material handling and dispatch	9,240

The production overhead is currently absorbed by using a Machine-hour rate and the company wishes to introduce Activity Based Costing (ABC) system and has identified major cost pools for production overheads and their associated cost drivers.

Information in these activity cost pools and their drivers is given below:

Activity Cost Pools	Cost Drivers
Factory Works Expenses	Machine-hours
Set up costs	Number of production runs
Stores receiving	Requisition raised
Inspection/Quality Control	Number of production runs
Material handling & dispatch	Number of orders executed

The number of requisitions-raised on the stores was 20 for each product and number of orders executed was 42, each order being for a batch of 10 of a product.

Requirements:

(a) Total cost of each product assuming the absorption of overhead on Machine-hour basis.

(b) Total cost of each product assuming the absorption of overhead by using Activity Based Costing.

(c) Show the differences between (i) and (ii) and Comment. [3+6+2+1=12]

Answer:

(i) Problems with throughput accounting:

(a) When throughput accounting is the driving force behind all production, scheduling, a customer that has already placed an order for a product, which will result in a sub-optimal profit level for the manufacturing, may find that its order is never filled.

(b) The company's ability to create the highest level of profitability is now dependent on the production scheduling staff, who decides, what products are to be manufactured and in what order.

(c) Another issue is that all costs are totally variable in the long-run since the management then, has the time to adjust them to long-range production volumes.

(ii) COMPUTATION OF UNIFORM PRICE FOR THE PRODUCT

(Amount in ₹)

Units share of production		Total cost	Return on capital employed	Selling price
	(1)	(2)	(3)	(2+3)
A	0.40	1700 × 0.40 = 680	1260 × 0.40 = 504	1184
B	0.25	1600 × 0.25 = 400	860 × 0.25 = 215	615
C	0.20	1500 × 0.20 = 300	700 × 0.20 = 140	440
D	0.15	1380 × 0.15 = 207	460 × 0.15 = 69	276
		= 1587	= 928	2515

Uniform price: ₹ 1,587 + ₹ 928 = ₹ 2,515

Hence, Uniform price for the product = ₹ 2,515

(iii)

MAGATRON LTD.

(a) Statements showing total cost of different products assuming absorption overhead on a Machine Hour Rate basis.

(Figure in ₹)

Particulars	Product				Total
	A	B	C	D	
Output (units)	120	100	80	120	420
Direct Material	40	50	30	60	180
Direct Labour	28	21	14	21	84
Overheads @ 40/- per M/G hr	160	120	80	120	480
Total cost per unit	228	191	124	201	
Total cost	27,360	19,100	9920	24,120	80,500

Overhead rate = $\frac{52,000}{1,300}$ = 40 per Machine hour

[Total machine hours = (120 × 4 + 100 × 3 + 80 × 2 + 120 × 3) = 1,300]

(b)

Total Overheads		Drivers	No.	Cost/Unit of Drivers	
Factory works expenses	₹ 20,860	Machine Hrs	1,300	20,860/1,300	=₹16.05
Set up costs	₹ 10,500	Production runs	21	10,500/21	=₹500.00
Stores receiving	₹ 7,200	Requisitions	80	7,200/80	=₹90.00
Inspection/Quality control	₹ 4,200	Productions runs	21	4,200/21	=₹200.00
Material handling & dispatch	₹ 9,240	Orders	42	9,240/42	=₹220.00
Total	₹ 52,000				

Statement showing total cost of each product assuming activity based costing:

Particulars	Product			
	A	B	C	D
Output (units)	120	100	80	120
No. of production runs	6	5	4	6
No. of stores requisitions	20	20	20	20
No. of sales orders	12	10	8	12

Machine hours per unit	4	3	2	3
Direct Material (₹)	40.00	50.00	30.00	60.00
Direct Labour (₹)	28.00	21.00	14.00	21.00
Factory Works Expenses (₹)	64.18	48.14	32.09	48.14
Set ups (₹)	25.00	25.00	25.00	25.00
Store receiving (₹)	15.00	18.00	22.50	15.00
Inspection/quality control (₹)	10.00	10.00	10.00	10.00
Handling/dispatch (₹)	22.00	22.00	22.00	22.00
Unit cost (₹)	204.18	194.14	155.59	201.14
Total cost (₹)	24,501.60	19,414.00	12,447.20	21.136.80

(c) Statement showing differences (in ₹)

Particulars	Products			
	A	B	C	D
Cost per unit under MHR (i)	228.00	191.00	124.00	201.00
Cost per Unit under ABC (ii)	204.18	194.14	155.59	201.14
Difference	23.82	(3.14)	(31.59)	(0.14)
Total Cost – MHR (i)	27,360.00	19,100.00	9,920.00	24,120.00
Total cost – ABC (ii)	24,501.60	19,414.00	12,447.20	24,136.80
Difference	2,858.40	(314.00)	(2,527.20)	(16.80)

Comments: Comparison of the ABC cost with the original traditionally calculated cost reveals that product-A was significantly overcosted by the traditional system relative to the ABC system, whilst product Byproduct C and product D were seriously undercosted. Product A consumes comparatively more of machine hours than other three products. This result is therefore to be expected. ABC reflects reality in its allocation of production overhead costs to the product. The traditional approach allocated all production overhead costs to products as if the overheads were driven by unit level activities i.e. the number of direct labour hours worked.
In the light of above criteria, it may be commented that ABC gives a better insight into the cost of producing the products than traditional cost.

2. (b) (i)

In manufacturing the main product A, a company processes, the resulting waste material into two by – products M_1 and M_2. Using the method of working back from sales value to an estimated cost, you are required to prepare a comparative profit and loss statement of the three products from the following data:

(i) Total cost upto separation point was ₹ 1,36,000

		A	M_1	M_2
(ii)	**Sale (all production)**	**₹3,28,000**	**₹32,000**	**₹48,000**
(iii)	**Cost after separation**	**---**	**9,600**	**14,400**
(iv)	**Estimated net profit percentage to sale value**	**---**	**20%**	**30%**
(v)	**Estimated selling expenses as percentage of sale value**	**20%**	**20%**	**20%**

[6]

Answer:

Statement showing the apportionment of joint costs at the point of separation

Total cost up to point of separation					₹ 1,36,000
Less: Cost of By-products by working backward			M_1	M_2	
Sales realization			₹ 32,000	₹ 48,000	

	M_1	M_2			
Less: Net Profit (20% and 30% of sales)	6,400	14,400			
Selling expenses (20% of sale)	6,400	9,600			
Cost after separation	9,600	14,400			
			22,400	38,400	
			9,600	9,600	19,200
Cost to be apportioned after split-off point					1,16,800

Comparative Profit & Loss Account

	Details	A	M_1	M_2	Total
1.	Sales	₹ 3,28,000	₹ 32,000	₹ 48,000	₹ 4,08,000
2.	Cost of Sales				
	Pre-Separation cost	1,16,800	9,600	9,600	1,36,000
	Post-Separation cost	---	9,600	14,400	24,000
	Cost of production	1,16,800	19,200	24,000	1,60,000
	Selling expenses	65,600	6,400	9,600	81,600
	Cost of Sales	1,82,400	25,600	33,600	2,41,600
3.	Profit (1 – 2)	1,45,600	6,400	14,400	1,66,400
4.	Profit as a % of sales	44.4%	20%	30%	40.8%

2. (b) (ii)

Messrs. Essbee Ltd. maintain Integrated Account of Cost and Financial Accounts. From the following details write control accounts in the general ledger of the factory and prepare a trial balance:

	₹
Share Capital	**3,00,000**
Reserve	**2,00,000**
Sundry Creditors	**5,00,000**
Plant and Machinery	**5,75,000**
Sundry Debtors	**2,00,000**
Closing Stock	**1,50,000**
Bank and Cash Balance	**75,000**
Transactions during the year were as follows:	
Stores purchased	**10,00,000**
Stores issued to production	**10,50,000**
Stores in hand	**95,000**
Direct wages incurred	**6,50,000**
Direct wages charged to production	**6,00,000**
Manufacturing expenses incurred	**3,00,000**
Manufacturing expenses charged to production	**2,75,000**
Selling at distribution expenses	**1,00,000**
Finished Stock production (at cost)	**18,00,000**
Sales at selling price	**22,00,000**
Closing stock	**95,000**
Payment to Creditors	**11,00,000**
Receipt from Debtors	**21,00,000**

[10]

Answer:

Share Capital Account

Particulars	₹	Particulars	₹
		By Balance b/d	3,00,000

Reserve Account

Particulars	₹	Particulars	₹
To Balance b/d	5,15,000	By Balance b/d	2,00,000
		By Costing P&L Account	3,15,000
	5,15,000		5,15,000
		By Balance b/d	5,15,000

Sundry Creditors Account

Particulars	₹	Particulars	₹
To Bank Account	11,00,000	By Balance b/d	5,00,000
To Balance c/d	4,00,000	By Stock control Account	10,00,000
	15,00,000		15,00,000
		By Balance b/d	4,00,000

Plant & Machinery Account

Particulars	₹	Particulars	₹
To Balance b/d	5,75,000		

Sundry Debtors Account

Particulars	₹	Particulars	₹
To Balance b/d	2,00,000	By Bank Account	21,00,000
To Sales	22,00,000	By Balance c/d	3,00,000
	24,00,000		24,00,000
To Balance b/d	3,00,000		

Stock Control Account

Particulars	₹	Particulars	₹
To Balance b/f	1,50,000	By W.I.P. Account	10,50,000
To Sundry Creditors	10,00,000	By Mfg. O.H. Control Account	5,000
		By Balance c/d	95,000
	11,50,000		11,50,000
To Balance b/d	95,000		

Bank Account

Particulars	₹	Particulars	₹
To Balance b/f	75,000	By Wages Control Account	6,50,000
To Sundry Debtors	21,00,000	By Production Ohd. Contro Account	3,00,000
		By Selling Expenses	1,00,000
		By Sundry Creditors	11,00,000
		By Balance c/f	25,000
	21,75,000		21,75,000
To Balance b/d	25,000		

W.I.P. Account

Particulars	₹	Particulars	₹
To Stores control Account	10,50,000	By Finished stock Account	18,00,000
To Wages control Account	6,00,000	By Balance c/d	1,95,000
To Prod. Ohd. Control Account	2,75,000		
	19,25,000		19,25,000
To Balance b/f	1,25,000		

Wages control Account

Particulars	₹	Particulars	₹

To Bank Account	6,50,000	By W.I.P. Account	6,00,000
		By Prod. Ohd. Account	50,000
	6,50,000		6,50,000

Production Overhead Control Account

Particulars	₹	Particulars	₹
To Stores Control Account	5,000	By W.I.P. Account	2,75,000
To Bank Account	3,00,000	By P&L Account (under-absorption)	80,000
To Wages Control Account	50,000		
	3,55,000		3,55,000

Selling and Distribution Overhead Control Account

Particulars	₹	Particulars	₹
To Bank Account	1,00,000	By Cost of Sales	1,00,000

Cost of Sales Account

Particulars	₹	Particulars	₹
To Finished Stock Control Account	17,05,000	By Costing P&L Account	18,05,000
To S&D Overhead Control Account	1,00,000		
	18,05,000		18,05,000

Finished Stock Control Account

Particulars	₹	Particulars	₹
To W.I.P. Account	18,00,000	By Cost of Sales Account	17,05,000
		By Balance c/d	95,000
	18,00,000		18,00,000
	95,000		

Sales Account

Particulars	₹	Particulars	₹
To Costing P&L Account	22,00,000	By S. Debtors Account	22,00,000

Costing P&L Account

Particulars	₹	Particulars	₹
To Cost of Sales Account	18,05,000	By Sales Account	22,00,000
To Prod. Ohd. Control Account (under absorption)	80,000		
To Net Profit (transferred to Reserve)	3,15,000		
	22,00,000		22,00,000

Trial Balance

	Dr. (₹)	Cr. (₹)
Share Capital		3,00,000
Reserve		5,15,000
Sundry Creditors		4,00,000
Plant and Machinery	5,75,000	
Sundry Debtors	3,00,000	
Stock in hand	95,000	
Stock of Finished Goods	95,000	
Bank Account	25,000	
W.I.P. Account	1,25,000	

	12,15,000	12,15,000

2. (b) (iii) State the practical difficulties in installing a costing system. [4]

Answer:

Apart from the technical costing problems, the cost accountant has to face the below mentioned practical difficulties also:-

(a) Lack of support from top management:
In most cases cost accounting system is introduced without the support of the top management in all the functional areas. Even the managing director or chairman often introduces the costing system without consulting the departmental heads. The departmental managers treat this as interference in their work. Thus it creates a fear in the minds of the departmental managers.

(b) Resistance from the existing staff:
Whenever a new system is introduced, resistance is natural as the existing staff may feel that they would lose their importance and may feel insecure of their position in the organization.

(c) Shortage of trained staff:
There may be shortage of trained staff to handle the work of cost analysis, cost control, and cost reduction. The work of costing department cannot be handled without trained staff having knowledge about the overall industry in general and organization in particular.

(d) Heavy cost of operating the system:
The cost of operating a system may be huge unless the costing system is properly designed according to the requirements of the each case separately. The system should be able to provide information which is required by all levels of management.

(e) Non co-operation from other staff:
The foreman, supervisors and other staff may also resent the additional paper work, which may arise because of introduction of costing system and may not co-operate with costing and other departments in providing the information which is absolutely necessary for smooth and efficient functioning of the costing system.

The person in-charge of costing department has to overcome the above mentioned difficulties through interpersonal skills & demonstrating the expertise in installing a costing system.

2. (c) (i)

Goodluck Ltd. is currently operating at 75% of its capacity. In the past two years, the levels of operations were 55% and 65% respectively. Presently, the production is 75,000 units. The company is planning for 85% capacity level during 2014 – 20015. The cost details are as follows:

	55% (₹)	65% (₹)	75% (₹)
Direct Materials	**11,00,000**	**13,00,000**	**15,00,000**
Direct Labour	**5,50,000**	**6,50,000**	**7,50,000**
Factory Overheads	**3,10,000**	**3,30,000**	**3,50,000**
Selling Overheads	**3,20,000**	**3,60,000**	**4,00,000**
Administrative Overheads	**1,60,000**	**1,60,000**	**1,60,000**
	24,40,000	**28,00,000**	**31,60,000**

Profit is estimated @ 20% on sales.
The following increases in costs are expected during the year:

	In percentage
Direct Materials	**8**
Direct Labour	**5**

Variable factory overheads	**5**
Variable selling overheads	**8**
Fixed factory overheads	**10**
Fixed selling overheads	**15**
Administrative overheads	**10**

Prepare flexible budget for the period 2014-2015 at 85% level of capacity. Also ascertain profit and contribution. [8]

Answer:

Goodluck Ltd.
Budget for the year 2014-2015
Production volume – 85% i.e., 85,000 units (note # 1)

Particulars	Variable cost		Fixed Costs (₹)	Total Costs (₹)
	Per unit (₹)	Total (₹)		
Direct materials [note # 2]	20.00×108%=21.60	8,36,000		
Direct labour [note # 2]	10.00×105%=10.50	8,92,500		
Factory overheads [note # 2]	2.00×105%=2.10	1,78,500	2,00,000×110% =2,20,000	
Selling overheads [note # 2]	4.00×108%=4.32	3,67,200	1,00,000×115% =1,15,000	
Administrative overheads [note#2]	---		1,60,000×110% =1,76,000	
Total cost		32,74,200	5,11,000	37,85,200
Profit [20% of sales=25% of cost]				9,46,300
∴ Sales				47,31,500
Contribution [sales–variable cost]				14,57,300

Note # 1: Production at 85%
Current production at 75% is 75,000 units. Hence, at 85%, the production will be 85,000 units. Likewise production at 55% and 65% capacity will be 55,000 units and 65,000 units respectively.

Note # 2: Segregation of semi-variable cost into fixed and variable components

Particulars		Variable Cost (₹)	Fixed costs (₹)
Direct materials	$\frac{₹15,00,000-₹13,00,000}{75,000units-65,000units}$	20.00	
Direct labour	$\frac{₹7,50,000-₹6,50,000}{75,000units-65,000units}$	10.00	
Factory overheads	$\frac{₹3,50,000-₹3,30,000}{75,000units-65,000units}$	2.00	Total costs – Variable costs = 2,00,000
Selling overheads	$\frac{₹4,00,000-₹3,60,000}{75,000units-65,000units}$	4.00	Total costs – Variable costs = 1,00,000
Administrative overheads	$\frac{₹1,60,000-₹1,60,000}{75,000units-65,000units}$	---	Total costs – Variable costs = 1,60,000
		36.00	4,60,000

2. (c) (ii)
A business produces 200 units of a product by making the following expenditure –

		₹
(i)	**Materials**	**30,000**
(ii)	**Labour**	**20,000**
(iii)	**Factory overhead**	**4,000**
(iv)	**Administrative Overhead**	**5,754**

(v)	**Selling and distribution overhead**	**1,500**

The products are sold at a price of ₹ 400 per unit.

The above expenditure are classified into fixed and variable as follows –

		Fixed	Variable
(i)	**Materials**	**Nil**	**100%**
(ii)	**Labour**	**50%**	**50%**
(iii)	**Factory overhead**	**25%**	**75%**
(iv)	**Administrative Overhead**	**100%**	**Nil**
(v)	**Selling and distribution overhead**	**60%**	**40%**

You are required to calculate –

(a) Total variable costs and total fixed costs

(b) Contribution in total as well as per unit

(c) P/V ratio

(d) Breakeven point in terms of rupees as well as units. **[2+1+1+2=6]**

Answer:

(a) Total variable costs and total fixed costs

		Fixed (₹)	Variable (₹)
(i)	Materials	Nil	100% of 30,000 = 30,000
(ii)	Labour	50% of 20,000 = 10,000	50% of 20,000 = 10,000
(iii)	Factory overhead	25% of 4,000 = 1,000	75% of 4,000 = 3,000
(iv)	Administrative Overhead	100% of 5,754 = 5,754	Nil
(v)	Selling and distribution overhead	60% of 1,500 = 900	40% of 1,500 = 600
		17,654	43,600

(b) Total contribution = Sales – Variable cost = ₹ 400 × 200 – ₹ 43,600 = ₹ 36,400

Contribution per unit = $\frac{\text{Total contribution}}{\text{Number of units sold}} = \frac{₹36,400}{200} = ₹\ 182$

(c) P/V ratio = $\frac{\text{Contribution per unit}}{\text{Selling price per unit}} = \frac{₹182}{₹400} = 45.5\%$

(d) BEP (₹) = $\frac{\text{Fixed Cost}}{\text{P/V ratio}} = \frac{₹17,654}{45.5\%} = ₹\ 38,800$

Breakeven point (units) = $\frac{\text{Fixed Cost}}{\text{Contribution per unit}} = \frac{₹17,654}{₹182 \text{ per unit}} = 97$ units.

2. (c) (ii) How do you treat Rectification cost and Obsolescence in costing. **[3+3=6]**

Answer:

Rectification Cost: In the course of manufacturing/process, there is likely to be some defective which can be rectified or brought upto the standard by incurring some extra material, labour and overheads. The cost is booked under 'Cost on rectification of detectives or re-processing cost'. The detectives should be classified under (i) normal (ii) abnormal for the purpose of control and treated as:

(I) Normal detectives – Rectification cost may be treated as part of the product cost if this is identifiable with any specific product or process, otherwise this may be treated as manufacturing overhead.

(II) Abnormal detectives – Such detectives should not normally have arisen and therefore, rectification cost is not to be charged in cost accounts but debitable to profit and loss account.

Obsolescence:
(I) Obsolescence of Fixed Assets.
(II) Obsolescence of Inventory.

(I) Obsolescence of Fixed Assets.

Obsolescence represents the loss arising as a result of having the discard an asset due to its supersession in favor of a more productive asset at an earlier date than planned/ contemplated. It is sometimes called "external depreciation" because the existing asset is replaced by a now asset on account of invention/innovation.

The loss due to obsolescence to fixed assets may be dealt with in the following manner:
- In industries which are vulnerable to the risks of obsolescence, e.g., electronics, it is somewhat predictable that obsolescence will take place with certain frequency. In such case, higher rates of deprecation may be charged to take care of such obsolescence.
- For industries which are not vulnerable to frequent obsolescence it is prudent to create a reserve fund to take care of such eventualities.
- For other industries bearing a remote possibility of obsolescence in the event of obsolescence taking place, loss is to be written off to profit and loss account.

(II) Obsolescence of Inventory:
Obsolete inventory may consist of raw materials, stores of finished goods. In either case, the write off is made direct to profit and loss account or no charge is made to cost of production.

Section B
Answer any two questions from this section.

3. (a) (i) What types of Educational Services are covered under the Companies (Cost Records and Audit) Rules 2014? 3

Answer:

The Companies (Cost Records and Audit) Rules 2014 covers **"Education services, other than such similar services falling under philanthropy or as part of social spend which do not form part of any business"**.

Any company imparting training or education by means of any mode is covered under Education Services. However, auxiliary services provided by companies, as a separate independent entity, to educational institutions viz., (i) transportation of students, faculty and staff; (ii) catering service including any mid-day meals scheme; (iii) security or cleaning or house-keeping services in such educational institution; (iv) services relating to admission to such institution or conduct of examination are not included under Education Services.

In case the educational institution covered under the Rules is providing the above auxiliary services as a part of their total operations, then the institution will be required to maintain records for such auxiliary services also.

(ii) What constitutes the cost records under Rule 2(e)? [5]

Answer:

As per Rule 2(e) the Companies (Cost Records and Audit) Rules, 2014, "cost records" means 'books of account relating to utilization of materials, labour and other items of cost as

applicable to the production of goods or provision of services as provided in section 148 of the Act and these Rules'. There cannot be any exhaustive list of cost accounting records. Any transaction - statistical, quantitative or other details - that has a bearing on the cost of the product/activity is important and form part of the cost accounting records.

Cost records are to be kept on regular basis to make it possible to "calculate per unit cost of production/operations, cost of sales and margin for each of its products for every financial year on monthly/quarterly/half-yearly/annual basis". What is required is to maintain such records and details in a structured manner on a regular basis so that accumulation is possible on a periodical basis.

3. (b) What are the eligibility criteria for appointment as a cost auditor? [8]

Answer:

Eligibility Criteria under Section 141 of the Companies Act, 2013 read with Rule 10 of the Companies (Audit and Auditors) Rules, 2014 and Section 148 of the Companies Act, 2013. The following persons are not eligible for appointment as a cost auditor:

(a) A body corporate. However, a Limited Liability partnership registered under the Limited Liability Partnership Act, 2008 can be appointed. [Section 141(3)(a)].
(b) An officer or employee of the company. [Section 141(3)(b)].
(c) A person who is a partner, or who is in the employment, of an officer or employee of the company. [Section 141(3)(c)].
(d) A person who, or his relative or partner is holding any security of or interest in the company or any of its subsidiary or of its holding or associate company or a subsidiary of such holding company. [Section 141(3)(d)(i)].
(e) Relatives of any partner of the firm holding any security of or interest in the company of face value exceeding ₹1 lakh. [Section 141(3)(d)(i) and Rule 10(1) of Companies (Audit and Auditors) Rules, 2014].
(f) A person who is indebted to the company or its subsidiary, or its holding or associate company or a subsidiary or such holding company, for an amount exceeding ₹5 lakhs. [Section 141(3)(d)(ii) and Rule 10(2) of Companies (Audit and Auditors) Rules, 2014].
(g) A person who has given any guarantee or provided any security in connection with the indebtedness of any third person to the company or its subsidiary, or its holding or associate company or a subsidiary of such holding company, for an amount exceeding ₹1 lakh. [Section 141(3)(d)(iii) and Rule 10(3) of Companies (Audit and Auditors) Rules, 2014].
(h) A person or a firm who, whether directly or indirectly, has business relationship with the company or its subsidiary, or its holding or associate company or subsidiary of such holding company or associate company. [Section 141(3)(e) and Rule 10(4) of Companies (Audit and Auditors) Rules, 2014].
"Business Relationship" is defined in Rule 10(4) of Companies (Audit and Auditors) Rules, 2014 and the same shall be construed as any transaction entered into for a commercial purpose, except commercial transactions which are in the nature of professional services permitted to be rendered by a cost auditor or a cost audit firm under the Act and commercial transactions which are in the ordinary course of business of the company at arm's length price - like sale of products or services to the cost auditor, as customer, in the ordinary course of business, by companies engaged in the business of telecommunications, airlines, hospitals, hotels and such other similar businesses.

(i) A person whose relative is a director or is in the employment of the company as a director or key managerial personnel of the company. [Section 141(3)(f)].
(j) A person who is in the full time employment elsewhere or a person or a partner of a firm holding appointment as its auditor if such person or persons is at the date of such

appointment or reappointment holding appointment as auditor of more than twenty companies. [Section 141(3)(g)].

(k) A person who has been convicted by a court for an offence involving fraud and a period of ten years has not elapsed from the date of such conviction. [Section 141(3)(h)].

(l) Any person whose subsidiary or associate company or any other form of entity, is engaged as on date of appointment in consulting and providing specialised services to the company and its subsidiary companies: [Section 141(3)(i) and Section 144].

- accounting and book keeping services
- internal audit
- design and implementation of any financial information system
- actuarial services
- investment advisory services
- investment banking services
  - rendering of outsourced financial services
  - management services

3 (c) (i) Many Companies have filed Form 23C as well as Form CRA-2 for 2014-15 in respect of different products and/or multiple cost auditors, if applicable. Which SRN Number has to be reported in the cost audit report while filing the same in XBRL Mode? [2]

Answer:

(a) Companies who have filed multiple Form 23C in respect of multiple cost auditors will be required to provide the SRN Numbers against each Form 23C filed.

(b) In case the company after filing individual Form 23C has also filed Form CRA-2, in such case the company will be required to provide the SRN Number of the latest CRA-2 only since the details of multiple cost auditors, if applicable for the company, would be covered under one Form CRA-2.

(ii) What is meant by Telecommunication Services and what is its coverage? [6]

Answer:

The Companies (Cost Records and Audit) Rules, 2014 has covered "Telecommunication services made available to users by means of any transmission or reception of signs, signals, writing, images and sounds or intelligence of any nature (other than broadcasting services) and regulated by the Telecom Regulatory Authority of India under the Telecom Regulatory Authority of India Act, 1997 (24 of 1997)". The Telecom Regulatory Authority of India Act, 1997 defines "telecommunication service" as "service of any description (including electronic mail, voice mail, data services, audio text service, video text services, radio paging and cellular mobile telephone services) which is made available to users by means of any transmission or reception of signs, signals, writing, images and sounds or intelligence of any nature, by wire, radio, visual or other electro-magnetic means but shall not include broadcasting services".

Subsequently, the Central Government has included broadcasting services within the ambit of telecommunication services by notifying "broadcasting services and cable services to be telecommunication service". [Notification No. 39 issued by Ministry of Communication and Information Technology dated 9 January 2004, S.O. No. 44(E) issued by TRAI, vide F. No. 13-1/2004].

In view of the above, Telecommunication Services made available to users and regulated by the Telecom Regulatory Authority of India under the Telecom Regulatory Authority of India Act, 1997 would include all such services being regulated by TRAI including broadcasting services.

Section C
Answer any three questions from this section.

4. (a) (i)

Cost = $300x - 10x^2 + \frac{1}{3}x^3$, Calculate

(i) Output at which Marginal Cost is minimum
(ii) Output at which Average Cost is minimum
(iii) Output at which Marginal Cost = Average Cost. **1+2+2=5**

Answer:

(i) Marginal Cost = $\frac{dc}{dx} = 300 - 20x + x^2$ (say, y)

In order that MC is minimum first derivate must be equal to zero and 2nd derivate must be positive.

$\therefore \frac{dy}{dx} = 2x - 20 \Rightarrow 2x = 20$

$x = 10$

$\frac{dy^2}{dx^2} = 2$, which is positive. It is minimum at x = 10.

(ii) Average Cost = $300 - 10x + \frac{1}{3}x^2$ (y say)

$\frac{dy}{dx} = -10 + \frac{2}{3}x = 0$

$\Rightarrow x = 30/2 = 15$

$\frac{d^2y}{dx^2} = \frac{2}{3} > 0$,

$\therefore$ Average Cost is minimum of output at x = 15.

(iii) Output at which marginal Cost = Average cost

$-20x + 10x + x^2 - \frac{1}{3}x^2 = 0$

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

$\frac{-30x + 2x^2}{3} = 0$

$2x^2 - 30x = 0$

$2x(x - 15) = 0$

$x - 15 = 0$

$\therefore x = 15$

4. (a) (ii) State the exception of Law of Demand. **3**

Answer:

The following are the exceptions to the Law of Demand

(i) **Giffen Paradox**: According to Giffen, even though the price, for necessary goods rise, the demand for them will not decrease. These goods are called "Giffen Goods".

(ii) **Prestigious goods** : The law of demand will not operate in case of prestige goods like diamonds, cars etc., The demand for these does not decrease with the rise in the price, as these goods are attached with prestige.

(iii) **Speculative Business**: The law of demand does not operate in case of the speculative business. If people think that the prices of goods increase in the future, now they will buy more units of that commodity. This is against the law of demand.

(iv) **Trade Cycles**: The law of demand does not operate in periods of trade cycles. During the prosperity period, people may buy more goods at higher prices. In periods of depression, people buy fewer goods even though the prices are less.

(v) **Ignorance of the Consumers:** The law of demand is not applicable in case of the ignorant consumers. By ignorance, people think that high priced goods are qualitative goods. Therefore the consumers would buy the goods even at high price.

4. (b) A firm assumes a cost function c(x) = x ($\frac{x^2}{10}$ + 200), x is a monthly output in thousands of units. Its revenue function is given by R (x) = $\left(\frac{2200 - 3x}{2}\right)$x Find

(i) If the firm decides to produce 10,000 units per month, the firms cost and Marginal cost.

(ii) If the firm decides to produce Marginal cost of 320, the level of output per month, and cost of the firm.

(iii) The marginal revenue function.

(iv) If a decision is taken to produce 10,000 units each month, the total revenue and marginal revenue of the firm.

(v) If the firm produces with a marginal revenue of 1040, the firm's monthly output and monthly revenue. [2+1+1+2+2]

Answer:

$c(x) = x\left(\frac{x^2}{10} + 200\right) = \frac{x^3}{10} + 200x$

x = '000 units p.m.

$R = \left(\frac{2200 - 3x}{2}\right)x = \frac{2200 - 3x^2}{2}$

(i) If firm's output – 10,000 units per month.

$\text{Cost} = 10\left(\frac{100}{10} + 200\right) = 2{,}100$

$MC = \frac{dc}{dx} = \frac{3x^2}{10} + 200$

$\text{Marginal Cost (at } x = 10) = \frac{3(100)}{10} + 200 = 230$

(ii) i.e., MC = 320

$\frac{3x^2}{10} + 200 = 320$

$3x^2 + 2000 = 3{,}200$

$3x^2 = 1200$

$X^2 = 400$

$\therefore \sqrt{400} = 20$

$\therefore \text{Total cost} = \frac{20.20.20}{10} + 200 \times 20 = 4{,}800$

(iii) Marginal Revenue

$= MR = \frac{dr}{dx} = \frac{2200}{2} - \frac{6x}{2}$

= 1100 – 3x

(iv) Total revenue at x = 10

Is $\frac{2200\times10 - 3(100)}{2} = \frac{22000 - 300}{2} = \frac{21700}{2}$

= 10850

Marginal Revenue = 1100 – 3 × 10 = 1070

(v) Given, MR = 1040

i.e., 1100 – 3x = 1040

- 3x = - 60

x = 20

Monthly Revenue = $\frac{2200\times20}{2} - \frac{3\times400}{2}$

= 22000 – 600 = 21400

4. (c)

(i) Demand functions for two Commodities

$$X_1 = \frac{4}{P_1^2 P_2} \text{ and } X_2 = \frac{16}{P_1 P_2^2}$$

Where x_1 and x_2 are quantities of demand for two commodities respectively, P_1 and P_2 being their units' prices.

Examine whether the commodities are complementary or competitive. 4

(ii) BATRON LTD. a monopolist aims at profit maximization. The fixed cost of the firm is ₹200 and the average variable cost of the firm is constant at ₹30 per unit. Batron Ltd. sells goods in Punjab & Haryana and estimated demand function for the goods in Punjab & Haryana are as under:

$P_P = 40 – 2.5\ Q_P$

$P_H = 120 – 10\ Q_H$

If the price discrimination is practicised by Batron Ltd., what will be the profit maximizing output? 4

Answer:

(i) Demand functions for two Commodities are

$$X_1 = \frac{4}{P_1^2 P_2}$$

Or, $x_1 = 4(P_1^{-2} \times P_2^{-1})$

$$\frac{\partial x_1}{\partial P_2} = 4P_1^{-2} - 1(P_2)^{-2} = \frac{-4}{P_1^2 \times P_2^2}$$

$$x_2 = \frac{16}{P_2 \times P_2^2}$$

Or, $x_2 = 16(P_1^{-1} \times P_2^{-2})$

$$\frac{\partial x_2}{\partial P_1} = 16P_2^{-2} \times \left(-1P_1^{-2}\right) = \frac{-16}{P_1^2 \times P_2^2}$$

Hence,

$$= -\frac{16}{P_1^2 P_2^2} < 0$$

Since $\frac{\delta x_1}{\delta p_1}$ and $\frac{\delta x_2}{\delta p_1}$ are < 0, a decrease in either price corresponds to an increase in both the demands.
Hence, the Commodities are complementary.

(ii) When price discrimination is practiced profit maximizing condition is

$MR_P = MC$ ..... (1) for Punjab
$MR_H = MC$ ..... (2) for Haryana
Now, $P_P = 40 - 2.5\ Q_P$

$TR_P = 40\ Q_P - 2.5\ Q^2_P$ $\qquad MR_P = \frac{d}{dQ_P}(40Q_p - 2.5\ Q^2_p)$

$MR_P = 40 - 5Q_P$

And $P_H = 120 - 10\ Q_H$

$TR_H = 120\ Q_H - 10Q^2_H$ $\qquad MR_H = \frac{d}{dQ_H}(120Q_H - 10\ Q^2_H)$

$MR_H = 120 - 20\ Q_H$

Since average variable cost is constant at ₹30 per unit, then
$MC = 30$
$40 - 5Q_P = 30$

$Q_P = 2$ units & $120 - 20Q_H = 30$
i.e. $Q_H = \frac{90}{20} = 4.5$ units.
Thus profit maximizing output in Punjab will be 2 units and Haryana will be 4.5 units.
Thus profit maximizing output for the monopolist:
2 + 4.5 = 6.5 units.

4. (d)

(i) State the main features of Perfect Competition Market. 4

(ii) Assume that for a closed economy, E = C + I + G,
where E = Total expenditure on Consumption Goods,
I = Exp. on Investment Goods
G = Govt. spending
For equilibrium, we must have E = Y, Y being total income received.
For a certain Economy, it is given that C = 15 + 0.9Y, where I = 20 + 0.05Y and G = 25.
Find the equilibrium values of Y, C and I. How will these change, if there is no Govt. spending? [2+2]

Answer:

(i) The following are the features of perfect competition market:
(a) There must be Large number of Buyers and sellers.
(b) In perfect competition, the goods produced by different firms are homogenious or identical.
(c) In perfect competition there is free entry and exit of the firms into the industry.
(d) The buyers and the sellers must have the knowledge with regard to the prices of various commodities at different supply and demand forces.
(e) The factors must be mobilized from those places where they are getting less remuneration to those places where they will get maximum remuneration.

(f) All commodities are identical in perfect competition. So the prices of the commodities are also uniform.
(g) In order to maintain the uniform price level in perfect, competition we should not include the transport cost in the price level.
(h) There is a difference between firm & industry under perfect competition. Firm is a production unit and where as industry is a group of firms.

(ii) $E = 15 + 0.9Y + 20 + 0.05 Y + 25$
$E = 60 + 0.95 Y = (I)$
As given $E = Y = 60 + 0.95 Y$
$0.05 Y = 60$
$\therefore Y = 60/0.05 = 1200$
$C = 15 + 0.9 \times 1200 = 1095$
$I = 20 + 0.05 \times 1200 = 80$

When there is no government Spending
$Y = 35 + 0.95y$
Or $0.05 y = 35$ $\quad \therefore Y = \frac{35}{0.05} = 700$

$C = 15 + 630 = 645$
$I = 20 + 0.05 \times 700 = 55$