Paper 10 - Cost & Management Accountancy

QUESTION 1, which is compulsory. Attempt all of them.
Section-A has three questions. Attempt any two of them.
Section-B has two questions. Attempt any one of them.
Section-C has three questions. Attempt any two of them.

Question.1

   a) **Enumerate the features of Integrated Accounting System.**   **[2]**

Answer:
Integrated Accounting System is the name given to a system of accounting, where the cost and financial accounts are kept in the same set of books. The features are:
   i)   Complete analysis of cost and sales are kept.
   ii) Complete details of all payments in cash are kept
   iii) Complete details of all assets and liabilities are kept and this system does not use notional accounts to represent all impersonal accounts.
   iv) Under this system, general ledger adjustments are not at all maintained and detailed accounts of assets and liabilities are maintained.

   b) **Product 'A' required 12 kg of material @ ₹5.00 per kg. The actual consumption of material for the manufacturing product A comes to 15 kg of material @ ₹6.00 per kg. Calculate:**
       i)   **Material Cost Variance**
       ii) **Material Usage Variance**   **[2+2]**

Answer:
Let,
   i)   SQSP = Standard Cost of Standard Material
   ii) AQSP = Standard Cost of Actual Material
   iii) AQAP = Actual Cost of Actual Material
Given Values,
   i)   SQ = Standard Quantity of Material = 12 kg
   ii) AQ = Actual Quantity of Material = 15 kg
   iii) SP = Standard Price = ₹5 per kg
   iv) AP = Actual Price = ₹6 per kg
Therefore,
   i)   SQSP = (12 × 5) = ₹60
   ii) AQSP = (15 × 5) = ₹75
   iii) AQAP = (15 × 6) = ₹90
Hence,
   i)   **Material Cost Variance** = SQSP – AQAP = 60 - 90 = ₹ 30(A)
   ii) **Material Usage variance** = SQSP – AQSP = 60 – 75 = ₹ 15 (A)

   c) **The output of three different products A, B, and C in a factory are 20,000 kg, 15,000 kg and 15,000 kg respectively. If the costs which totals to ₹13,75,000 are in proportion of 4:6:7, then find out the cost per equivalent unit.**   **[2]**

Answer:

Products	Units	Cost Ratio	Equivalent Units
A	20,000	4	80,000
B	15,000	6	90,000
C	15,000	7	1,05,000

			2,75,000

Cost per Equivalent unit = $\dfrac{₹13,75,000}{2,75,000} = ₹5$

d) The opening and closing balances of Plant and Machinery of Gupta & Co, are ₹2,00,000 and ₹2,80,000 respectively. Depreciation charged during the year is ₹20,000 (under Straight Line Method) and ₹35,000 (under Diminishing Balance Method). Calculate the additions made during the year, in the above two situations. **[2]**

Answer:
i) Additions for the year = ₹ 2,80,000 + ₹ 20,000 - ₹ 2,00,000 = ₹ 1,00,000 (Under Straight Line Method)
ii) Additions for the year = ₹ 2,80,000 + ₹ 35,000 - ₹ 2,00,000 = ₹ 1,15,000 (Under Diminishing Balance Method)

e) Define 'Turnover', as per Cost Accounting Record Rules. **[2]**

Answer:
The Companies (Cost Accounting Record) Rules, 2011 has defined 'Turnover' as follows:
'Turnover' means, gross turnover made by the company from the sale or supply of all products or services during the financial year. It includes any turnover from job work or loan license operations but does not include any non-operational income.

Subsequently, while issuing the 6 industry specific cost accounting record rules, the definition of turnover has been slightly modified and defined as – 'Turnover' means total turnover made by the company from sale or supply of all products or services during the financial year and it includes any turnover from job work or loan license operations and subsidies or grants or incentives received but does not include any non-operational income.

f) Can a company be exempted from maintenance of Cost Accounting Records. If so, how? **[2]**

Answer:
The Institute of Cost Accountants of India has clarified that there is no provision under which a company can apply for exemption from application of the Companies (Cost Accounting Record) Rules, 2011.
It may however be noted that in case of companies which have stopped operations completely or companies which are no longer engaged in any activity of production, processing, manufacturing or mining as defined in the rules, such companies may write to the MCA providing full details of its case intimating that it has become non-operational or has stopped being engaged in any production, processing, manufacturing or mining activities and seek exemption from maintenance of relevant cost accounting records.

g) State Giffen Paradox. **[2]**

Answer:
According to the Law of demand when the price rises demand decreases and vice-versa. But, according to Sir, Robert Giffen even though the price, for necessary goods rise, the demand for them will not decrease. These goods are called Giffen goods.

h) What is Arc Elasticity? [2]

Answer:
In arc elasticity the elasticity of demand between two points on the demand curve is calculated.

$$\text{Arc Elasticity of demand} = \frac{\text{Change in Demand}}{1\text{st demand} + 2\text{nd demand}} \times \frac{\text{Change in price}}{1\text{st price} + 2\text{nd price}}$$

$$Ed = \left[\frac{\Delta q}{\Delta p}\right] \times \left[\frac{P_1 + P_2}{Q_1 + Q_2}\right]$$

After application of the above formula if the result is more than one then it is elastic demand, if the result is less than one then it is inelastic demand and if the result is equal to one then it is unitary demand.

i) What is Delphi Method of demand forecasting and how it is undertaken? [2]

Answer:
Delphi method is a group process and aims at achieving 'consensuses' of the members. Herein experts in the field of marketing research and demand forecasting are engaged in

- Analyzing economic conditions.
- Carrying out sample surveys of market
- Conducting opinion polls

Based on the above, demand forecast is worked out in following steps:

(i) Co-ordinator sends out a set of questions in writing to all the experts co-opted on the panel who are requested to write back a brief prediction.
(ii) Written predictions of experts are collated, edited and summarized together by the Co-ordinator.
(iii) Based on the summary, Co-ordinator designs a new set of questions and gives them to the same experts who answer back again in writing.
(iv) Co-ordinator repeats the process of collating, editing and summarizing the responses.
(v) Steps 3 and 4 are repeated by the Co-ordinator to experts with diverse backgrounds until consensus is reached.

Question.2

a) ABC Ltd., a manufacturer of a specialised product, is having a process costing system. The stock of work-in-progress at the end of each month is valued on FIFO basis. At the beginning of a month, the stock of work-in-progress was 400 units (40 per cent complete) which was valued as follows:

Materials	₹3,600
Labour	₹3,400
Overheads	₹1,000
	₹8,000

During the month, actual issue of materials for production purpose was ₹ 68,500. Wages and overheads in the month amounted to ₹ 79,800 and ₹ 21,280 respectively. Finished production taken into the stock in the month was 2,500 units. There was no loss in the process. At the end of

the month, the stock of work-in-progress was 500 units (60 per cent complete as to labour and overheads and 80 per cent complete as to materials).
Prepare a process Cost Sheet showing total and unit costs.   [10]

Answer:

Basic Calculations:
1. **UNITS INTRODUCED DURING THE MONTH**

	Units
Finished Units	2,500
Add: Units in stock as WIP at the end of the month	500
	3,000
Less: Units in stock as WIP in the beginning of the month	400
Units introduced	2,600

2. **STATEMENT OF EQUIVALENT PRODUCTION**

	Total Units	Degree of Completion	Materials Units	Labour Units	Overheads units
(i) Opening WIP completed	400	60%	240	240	240
(ii) Units introduced and completed	2,100	100%	2,100	2,100	2,100
(iii)Units introduced but incomplete	500	80%	400	-	-
		60%	-	300	300
Equivalent production	3,000		2,740	2,640	2,640

3. **STATEMENT OF COST PER EQUIVALENT UNIT**

	Materials	Labour	Overheads
(i) Costs incurred during month(₹)	68,500	79,800	21,280
(ii) Equivalent production (Units)	2,740	2,640	2,640
(iii) Cost per unit (i) ÷ (ii) (₹)	25	30.227	8.061

4. **STATEMENT OF COST OF FINISHED GOODS**

	₹
Opening Work-in-progress: Cost incurred last month	8,000
Cost incurred during the month:	
Materials 240 x 25	6,000
Labour 240 x 30.227	7,254
Overheads 240 x 8.061	1,935
	23,189
Units introduced and completed 2,100 x (25 + 30.227 + 8.061)	1,32,905
	1,56,094

5. **STATEMENT OF CLOSING WORK-IN-PROGRES**

	₹
Materials (400 x 25)	10,000
Labour (300 x 30.227)	9,068
Overheads (300 x 8.061)	2,418
	21,486

PROCESS COST SHEET

	Units	₹
Opening Work-in-progress	400	8,000
Add: Units introduced during the month: Materials Labour Overheads	2,600	68,500 79,800 21,280
	3,000	1,77,580
Less: Closing work-in-progress (See Note 5 above)	500	21,486
Cost of Production (see note 4 above)	2,500	1,56,094

b) Arun Ltd. follows standard costing system and the following information is available for the month of April, 2014.

i) Actual Production – 1,500 kg.

Materials Consumed			Labour deployed		
Type	Quantity (kgs.)	Rate (₹ per kg.)	Worker	Time worked (hours)	Rate (₹ per hour)
A	550	5.00	P	32	11.00
B	200	6.00	Q	14	9.00
C	350	2.00	R	20	11.00
D	400	5.00	S	10	18.00

ii) Details of standard materials and labour cost based on production of 1,000 kgs. are as under:

Consumption of Materials			Deployment of labour		
Type	Quantity (kgs.)	Rate (₹ per kg.)	Worker	Time (hours)	Rate (₹ per hour)
A	400	4.00	P	20	10.00
B	100	5.00	Q	10	8.00
C	200	2.50	R	15	12.00
D	300	6.00	S	7	20.00

From the above information you are required to compute
(i) Labour rate variances
(ii) Labour efficiency variances

Also prepare a reconciliation statement between actual cost and standard cost for labour.

[3+3+2]

Answer:
I. Labour variances:

Worker	Std. Cost for Actual Output 1500 kg.			Actual cost for Actual Production		
	Time (Hrs.)	Rate ₹	Amount ₹	Time (Hrs.)	Rate ₹	Amount ₹
P	30	10	300	32	11	352
Q	15	8	120	14	9	126
R	22.5	12	270	20	11	220
S	10.5	20	210	10	18	180
Total	78		900	76		878

(i) **Labour Rate Variance (LRV)**	= Actual Hrs. × (SR – AR)

P	= 32 × (10 – 11)	= 32 (A)
Q	= 14 × (8 – 9)	= 14 (A)
R	= 20 × (12 – 11)	= 20 (F)
S	= 10 × (20 – 18)	= 20 (F)
		₹ 6(A)

(ii) **Labour Eff. Variance (LEV)**	= Std. Rate x (Std. time for output – Actual time)	
P	= 10 × (30 – 32)	= 20 (A)
Q	= 8 × (15 – 14)	= 8 (F)
R	= 12 × (22.5 – 20)	= 30 (F)
S	= 20 × (10.5 – 10)	= 10 (F)
		₹ 28(F)

RECONCILIATION STATEMENT BETWEEN ACTUAL COST & STANDARD COST

Labour	Actual Cost	Variance			Standard Cost
	₹	Rate	Efficiency	Total	₹
P	352	32 (A)	20 (A)	52 (A)	300
Q	126	14 (A)	8 (F)	6 (A)	120
R	220	20 (F)	30 (F)	50 (F)	270
S	180	20 (F)	10 (F)	30 (F)	210
	878	6 (A)	28 (F)	22 (F)	900

c) State the general principles of Standard Costing. **[2]**

Answer:
i) Predetermination of technical data related to production i.e., details of material and labour operations required for each product, the quantum of inevitable losses, efficiencies expected, level of activity etc
ii) Predetermination of standard cost in full details under each element of cost, viz., labour, material and overhead.
iii) Comparison of actual performance and costs with the standards and working out of the variances. i.e., the differences between the actual and the standards.
iv) Analysis of variances in order to determine the reasons for deviations of actual from the standards
v) Presentation of information to the appropriate level of management to enable suitable action (remedial measure or revision of the standards) being taken.

Question.3
a) **Anand Co. Ltd., having an adequate supply of labour presents the following data. Kindly analyse and state the area to be allotted for cultivation of various types of vegetables which would result in the maximization of profits. The company contemplates growing Mushrooms, Onion, Carrots and Corns.**

	Mushrooms	Onions	Carrots	Corns
Selling Price per box (₹)	30	30	60	90
Seasons yield per acre (No of Boxes)	500	150	100	200
	Cost (₹)			
Material per acre	270	105	90	150
Labour for growing per acre	300	225	150	195
Picking & Packing per box	1.50	1.50	3.00	4.50
Transport per Box	3.00	3.00	1.50	4.50

The fixed cost in each season would be:

i) Cultivation & growing - ₹ 56,000
ii) Picking - ₹ 42,000
iii) Transport - ₹ 10,000
iv) Administration - ₹ 84,000
v) Land Revenue - ₹ 18,000

The company also faces the following limitations:

i) The area available is 450 acres, but out of it 300 acres are suitable for growing only carrots and onions. The balance 150 acres is suitable for growing all four vegetables.
ii) As the products may be hypothecated to banks, hence the area allotted to any vegetable should be demarcated clearly in complete acres and not in fractions of an acre.
iii) The marketing strategy of the company requires compulsory production of all four types of vegetables in a season and the minimum quantity of any type should be 18,000 boxes.

Also calculate the profits that would arise in case the firm follows your advice.   [4+4]

Answer:

Statement showing computation of contribution per acre and determination of priority for profitability				
Particulars	Mushrooms(₹)	Onion(₹)	Carrot(₹)	Corns(₹)
I Sales value per acre	15,000	4,500	6,000	18,000
II Variable Cost:				
Material	270	105	90	150
Labour for growing	300	225	150	195
Picking & Packing Labour	750	225	300	900
Transport	1,500	450	150	900
	2,820	1,005	690	2,145
III Contribution	12,180	3,495	5,310	15,855
Priority	II	IV	III	I

Statement showing optimum mix under given conditions and computation of profit at that mix					
Particulars	Mushrooms (₹)	Onion (₹)	Carrot (₹)	Corns (₹)	Total (₹)
Minimum production (in boxes)	18,000	18,000	18,000	18,000	
Area utilized for these minimum production	36	120	180	90	426
Remaining area					24
I. No of acres to be cultivated, based on priority	36	120	180	114	450
II. Contribution per acre	12,180	3,495	5,310	15,855	
III. Total Contribution	4,38,480	4,19,400	9,55,800	18,07,470	36,21,150
IV. Fixed Cost					2,10,000
V. Profit					34,11,150

b) For a particular stationary item, the sales price per unit is ₹ 25. The variable cost per unit for Material & Labour is ₹15. The variable selling cost per unit is ₹4. Factory overheads amounts to ₹5,40,000 and Fixed Administration Cost ₹ 2,70,000. Based on the given data calculate:
   i. BEP expressed in amount of sales in rupees.
   ii. Number of units that must be sold to earn a profit of ₹ 90,000 per year

iii.   **How many units must be sold to earn a net income of 15% of sales.**

[2+2+2]

Answer:

Particulars	₹	₹
Selling Price		25.00
Variable Cost		
Material & Labour	15.00	
Selling Cost	4.00	19.00
Contribution per unit		**6.00**
Fixed Administration Cost	2,70,000.00	
Factory Overheads	5,40,000.00	
Total Fixed Cost		**8,10,000.00**

∴ BEP (units) $= \dfrac{8,10,000}{6} = 1,35,000$ units

i.   **BEP expressed in amount of sales in rupees =** 1,35,000 × ₹ 25 = ₹ 33,75,000

ii.   **Number of units that must be sold to earn a profit of ₹90,000 per year =**
$\dfrac{8,10,000 + 90,000}{6} = 1,50,000$ units

iii.   **How many units must be sold to earn a net income of 15% of sales**

Let 'a' be the number of units.

Sales = 25a

∴ Desired profit = 15% of 25a = 3.75a

Hence, units to be sold are $= \dfrac{Total\ Fixed\ \cos t + Desired\ profit}{Contribution\ per\ unit}$

or,   a $= \dfrac{8,10,000 + 3.75a}{6}$

or,   a   = 3,60,000 units.

c)   **The following figures have been extracted from the books of accounts of "Anu Ltd' for the year 2013.**

Particulars	₹
Direct Material consumption	45.00,000
Direct Wages	36,00,000
Factory Overheads	16,00,000
Administration Overhead	7,00,000
Selling & Distribution Overhead	9,60,000
Bad Debts	80,000
Preliminary expenses written off	40,000
Legal Charges	10,000
Dividend received	1,00,000
Interest on deposit received	20,000
Sales (1,20,000 units)	1,20,00,000
Closing Stock	
Finished goods (4,000 units)	3,20,000
Work-in-progress	2,40,000

Cost accounts for the same period reveal that the direct material consumption was ₹ 50, 00,000. Factory overhead recovered was 20% on prime cost; Administration overhead recovered was @ ₹ 6.00 per unit of production and selling and distribution overhead recovered were @ ₹ 8.00 per unit sold.

You are required to prepare the Costing profit & loss account and reconcile the same with the Financial profit and loss account provided that the net profit as per financial books is ₹ 11,90,000 for that year. **[3+3]**

Answer:

Costing Profit & Loss A/c			
Particulars	**Amount (₹)**	**Particulars**	**Amount (₹)**
To, Materials	50,00,000	By, Sales	1,20,00,000
To, Direct Wages	36,00,000		
Prime Cost	86,00,000		
To, Factory O/H (@20% on prime cost)	17,20,000		
	1,03,20,000		
(-) Closing WIP	2,40,000		
Factory Cost	1,00,80,000		
To Administration O/H [(1,20,000 +4,000)×6]	7,44,000		
Cost of Production	1,08,24,000		
(-) Closing stock of Finished goods $[1,08,24,000 \times \dfrac{4,000}{1,24,000}]$	3,49,161		
Cost of Goods sold (8 × 1,20,000)	1,04,74,839		
To, Selling O/H	9,60,000		
To, Profit	5,65,161		
	1,20,00,000		1,20,00,000

Statement of Reconciliation		
Particulars	**Amount (₹)**	**Amount (₹)**
Profit as per Financial accounts (given)		11,90,000
Add: Over Valuation of closing stock of Finished goods in cost accounts (3,49,161 – 3,20,000)	29,161	
Pure Financial Items not considered in cost accounts:		
1. Bad Debts	80,000	
2. Preliminary expenses written off	40,000	
3. Legal Charges	10,000	1,59,161
Less: Over recovery of		
1. Material	5,00,000	
2. Factory Overhead	1,20,000	
3. Administration Overhead	44,000	
Financial items not considered in Cost Accounts		
1. Dividend Received	1,00,000	
2. Interest on Deposits	20,000	7,84,000

Profit as per cost Accounts		5,65,161

Question.4

a) **"India Transport Ltd" operates a fleet of trucks. The records for the truck, 'Special' reveals the following information for April, 2014:**

1.	Days maintained	30
2.	Days operated	25
3.	Days idle	5
4.	Total hours operated	300
5.	Total kilometers covered	2,500
6.	Total Tonnage carried (4 tonne – load per trip, return journey empty)	200

The following further information is made available:

i) **Operating Cost for the month:**

1.	Petrol	₹ 400
2.	Oil	₹ 170
3.	Grease	₹ 90
4.	Wages to driver	₹ 550
5.	Wages to helpers	₹ 350

ii) **Maintenance Costs for the month:**

1.	Repairs	₹ 170
2.	Overhaul	₹ 60
3.	Tyres	₹ 150
4.	Garage charges	₹ 100

iii) **Fixed costs for the month based on the estimates for the year:**

1.	Insurance	₹ 50
2.	License & Tax	₹ 80
3.	Interest	₹ 40
4.	Other Overheads	₹ 190

iv) **Capital Costs:**

1.	Cost of acquisition	₹ 54,000
2.	Residual Value at the end of 5 years	₹ 36,000

Prepare cost sheet and calculate the following:

i) **Cost per day operated**

ii) **Cost per kilometer** [4+1+1]

Answer:

Cost Sheet of "India Transport ltd" for the month of April, 2014

Particulars	Amount (₹)	Amount (₹)
I. Operating Costs:		
Petrol	400	
Oil	170	
Grease	90	
Wages to drivers	550	
Wages to helpers	350	1,560
II. Maintenance Costs:		
Repairs	170	
Overhaul	60	

	Tyre	150	
	Garage charges	100	480
III.	Fixed Costs		
	Insurance	50	
	License & tax	80	
	Interests	40	
	Other overheads	190	
	Depreciation $= \dfrac{54,000-36,000}{5\times12}$	300	
			660
IV.	Total monthly cost		2,700

i) **Cost per day operated =** (₹ 2,700 ÷ 25 days) = ₹ 108
ii) **Cost per kilometer** **=** (₹ 2,700 ÷ 2500 kms) = ₹ 1.08

b) Ashim Ltd. produces four joint products, A, B, C and D, all of which emerge from the processing of one raw material. The following are the relevant data:

Production for the period:

Joint Products	Number of units	Selling price per unit (₹)
A	500	18.00
B	900	8.00
C	400	4.00
D	200	11.00

The company budgets for a profit of 10% of sales value. The other estimated costs are:

Particulars	Amount (₹)
Carriage Inwards	1,000
Direct Wages	3,000
Manufacturing Overhead	2,000
Administration Overhead	10% of sales value

You are required to:
   i) Calculate the maximum price that may be paid for the raw material
   ii) Prepare a comprehensive cost statement for each of the products allocating the materials and other costs based upon
      a. Number of units   b. Sales Value   [4+3+3]

Answer:

Joint Products	Number of units	Selling price per unit (₹)	Sales Value (₹)
A	500	18.00	9,000
B	900	8.00	7,200
C	400	4.00	1,600
D	200	11.00	2,200
Total Sales Value			20,000
Less: Budgeted profit			2,000
Total Joint Cost			18,000

i) **Maximum price that may be paid for the raw material:**

Particulars	Amount (₹)	Amount (₹)

				18,000
Total Joint Costs				18,000
Less: Other cost				
i. Carriage Inwards			1,000	
ii. Direct Wages			3,000	
iii. Manufacturing Overhead			2,000	
iv. Administration Overhead			2,000	8,000
Maximum price that may be paid for the raw material				10,000

ii) Comprehensive cost statements:
a. Based on Number of units:

Particulars	A	B	C	D	Total
Number of units	500	900	400	200	2000
Raw Material @ ₹5.00	2500	4500	2000	1000	10000
Carriage @ 50p	250	450	200	100	1000
Direct wages @ ₹1.50	750	1350	600	300	3000
Manufacturing Overhead @ ₹1	500	900	400	200	2000
Administration Overhead @ ₹1	500	900	400	200	2000
Total Cost	4500	8100	3600	1800	18000

b. Based on Sales Value:

Particulars	A	B	C	D	Total
Sales Value	9000	7200	1600	2200	20000
Raw Material	4500	3600	800	1100	10000
Carriage	450	360	80	110	1000
Direct wages	1350	1080	240	330	3000
Manufacturing Overhead	900	720	160	220	2000
Administration Overhead	900	720	160	220	2000
Total Cost	8100	6480	1440	1980	18000

c) Analyse B.E.P with the help of a graph. Also state what is Angle of Incidence and Margin of Safety. [2+1+1]

Answer:
Break Even Point (B.E.P) is the volume of production or sales where total costs equals to total revenue. It is a no profit no loss situation for the company. It helps in finding out the relationship of costs and revenues to output. In understanding the break even point, cost, volume and profit are always used.
A formal break even chart would be as follows.
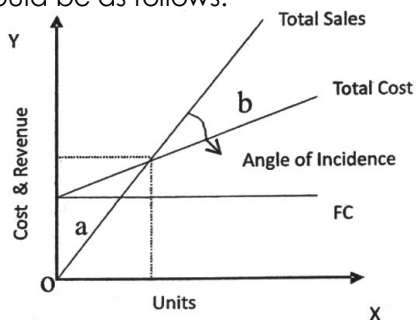
The number of units is expressed on X-axis and the costs and revenues are expressed on Y-axis. There are three other lines, Fixed Cost (FC), Total Cost and Total sales. B.E.P is the point where total cost and total sales line intersect.

Angle of Incidence is an angle formed at the intersection point of total sales line and the total cost line in a formal break even chart. This angle depicts the rate of growth of profits or profitability rate.

Margin of Safety is the amount of sales achieved by company over and above its break even sales. It may be obtained by subtracting break even sales from total sales. It is useful in determining the financial soundness of a business enterprise.

Section-B
Answer any one question from this section.

Question.5
   a) What are the objectives of Cost Audit?   [6]

Answer:
Cost Audit has both general and social objectives. The general objectives are enumerated below:

1. Verification of cost accounts with a view to ascertain that these have been properly maintained and compiled according to the cost accounting system followed by the enterprise.
2. Ensuring that the prescribed procedures of cost accounting record rules are duly adhered to.
3. Detection of errors and fraud.
4. Verification of the cost of each "cost unit" and "cost center" to ensure that these have been properly ascertained.
5. Determination of inventory valuation.
6. Facilitating the fixation of prices of goods and services.
7. Periodical reconciliation between cost accounts and financial accounts.
8. Ensuring optimum utilization of human, physical and financial resources of the enterprise.
9. Detection and correction of abnormal loss of material and time.
10. Inculcation of cost consciousness.
11. Advising management, on the basis of inter-firm comparison of cost records, as regards the areas where performance calls for improvement.
12. Promoting corporate governance through various operational disclosures to the directors.

 Among the social objectives of cost audit, the following deserve special mention:
1. Facilitation in fixation of reasonable prices of goods and services produced by the enterprise. Improvement in productivity of human, physical and financial resources of the enterprise.
2. Channelizing of the enterprise resources to most optimum, productive and profitable areas.
3. Availability of audited cost data as regards contracts containing escalation clauses.
4. Facilitation in settlement of bills in the case of cost-plus contracts entered into by the Government.
5. Pinpointing areas of inefficiency and mismanagement, if any for the benefit of shareholders, consumers, etc., such that necessary corrective action could be taken in time.

b) State the provisions under Companies Act relating to Cost Audit, mentioning relevant sections.

[10]

Answer:

Section 233B was inserted by section 23 of the Companies (Amendment) Act, 1965 in order to enable Government to issue necessary directions for conducting cost audit of companies engaged in production, processing, manufacturing or mining activities.

The provisions of section 233B of Companies Act may be enumerated as under:

1. Cost audit is to be conducted only when the Central Government directs such an audit. [Sec. 233B(1)]
2. The auditor for this purpose is to be appointed by the Audit Committee of Board of Directors. The appointment will deemed to be approved unless any objection is received from Central Government.
3. Cost audit is in addition to financial audit, which is conducted by an auditor (financial auditor) under Sec. 224. [Sec. 233B(3)]
4. The cost auditor has same powers as financial auditor has, under Sec. 227(1). The cost auditor is to submit his report to the Central Government, in the form and within the time prescribed, with a copy to the company. [Sec. 233B(4)].
5. Persons referred to in sub-section (3) or sub-section (4) of Section 226 shall not be appointed or re-appointed as cost auditor of the company. Similarly a person appointed under Section 224 (Financial Auditor) also cannot be appointed as the cost auditor of the company. [Sec. 233B(5)].
6. It is the duty of the company to give all facilities and assistance to the cost auditor. [Sec. 233B(6)].
7. The company shall within thirty days from the date of receipt of a copy of the report, furnish to the Central Government with full information and explanation on every reservation or qualification contained in the report. [Sec. 233B(7)].
8. The Central Government may call from the company further details which shall be provided within the specified time. [Sec. 233B(8)].
9. The Central Government may take appropriate action on the report as it may consider necessary. [Sec. 233B(9)].
10. The Central Government may direct the company to circulate to its members whole or part of the report with the notice of AGM to be held for the first time after the submission of the report. [Sec. 233B(10)].
11. Penal action is for default in complying with the provisions of this Section. The company liable to fine extending to ₹ 50,000/- and every officer of the company who is in default shall be liable to be punished with imprisonment for a term which may extend to three years, or with fine which may extended to ₹ 50,000/- or with both.

Question.6
As per Cost Audit Record Rules, state the functions of the following industries.
   a) Telecommunication Industry
   b) Pharmaceuticals Industry
   c) Petroleum Industry
   d) Electricity Industry
   e) Sugar Industry   **[5+5+2+2+2]**

Answer:

   a) Telecommunication Industry:

"Telecommunication Activities" means any act, process procedure, function, operation, technique, treatment or method employed in relation to telecasting, broadcasting, telecommunicating voice, text, picture, information, data or knowledge through any mode or medium and includes intermediate and allied activities thereof and these activities would, inter alia, include the following services or activities, including such services that required license or registration with the Ministry of Communications and information Technology, Government of India, namely:-

1) Basic Telephone Services;
2) National Long Distance Services;
3) International Long Distance Services;
4) Cellular Mobile Telephone Services;
5) Wireless Local Loop (WLL) (Fixed or Mobile) Telephone Services;
6) Very Small Aperture Terminal Services:
7) Public Mobile Radio Trunk Services;
8) Global Mobile Personal Communication Services;
9) Internet or Broadband or Wireless Access service;
10) Infrastructure Provider (IP – 1);
11) Passive Telecom Infrastructure including Telecom Tower Facilities;
12) Cable Landing Stations; and
13) Any other related, allied, intermediate or support services in relation to telecommunication activities not indicated above.

b) Pharmaceuticals Industry:

"Pharmaceutical Activities" means production, processing, or manufacturing of bulk drugs of formulations and includes the meaning assigned to them under the Drugs (Prices Control) Order 1995 as amended from time to time, or included under Chapters 29 and 30 of the Central Excise Tariff Act, 1985 (5 of 1986), and further includes the intermediate products and articles or allied products thereof.

   i.   **"Bulk drugs"** means any pharmaceutical, chemical, biological or plant product including its salts, esters, stereo-isomers and derivatives, which are used as such or as an ingredient in any formulation and shall include any bulk drug included in any bona fide Allopathic, Ayurvedic, Homeopathic, Sidha or Unani (Tibb) systems of medicine;

   ii. **"Formulations"** means any medicine processed out of or containing one or more bulk drugs with or without the use of any pharmaceutical aids for internal or external use of or in the diagnosis, treatment, mitigation or prevention of disease in human beings or animals and shall include any medicine included in any bona fide Allopathic, Ayurvedic, Homeopathic, Sidha or Unani (Tibb) systems of medicine;

c) Petroleum Industry:

"Petroleum Activities" means production, processing manufacturing or mining of crude oil, gases [including Natural Gas, Compressed Natural Gas, Liquefied Petroleum Gas and regasified gases, etc. as defined in the Petroleum and Natural Gas Regulatory Board Act, 2006 (19 of 2006)] or Biogas or any other petroleum products, or included under Chapter 27 of the Central Excise Tariff Act, 1985 (5 of 1986), including the intermediate products and articles or allied products or

activities thereof and includes storage, transportation or distribution of crude oil or gases or biogas or any or all of the petroleum products.

d) Electricity Industry:

"Electricity Actvities" means any act, process, procedure, function, operation, technique, treatment or method employed in relation to generation of electricity from any source of energy and includes transformation, transmission, distribution or supply of electricity by any mode, or medium and further includes intermediate and allied activities thereof.

e) Sugar Industry:

"Sugar Activities" means the activities relating to the production, processing, or manufacturing of any form or grade of sugar, molasses, or alcohol (including ethyl alcohol, rectified spirit, absolute alcohol, denatured alcohol, power alcohol, or solvent blends etc. but excluding potable alcohol) by using any raw materials, and includes the meaning assigned to them under Chapter 17 or Chapter 22 of the Central Excise Tariff Act, 1985 (5 of 1986) or of the Customs Tariff Act, 1975 (51 of 1975), and further includes the intermediate products and articles or allied products thereof.

SECTION C
Answer any two questions from this section.

Question.7
   a) **The total cost function of a manufacturing firm is given by C = 2x³ - x² + 3x + 5 and the Marginal Revenue = 8 – 3x, X = output, determine the most profitable output of the firm.**

[4]

Answer:

$C = 2x^3 - x^2 + 3x + 5$
$M.R. = 8 – 3x$
$M.C. = 6x^2 – 2x + 3$
Profit is maximum at MC = MR
$6x^2 – 2x + 3 = 8 – 3x$
$6x^2 + x – 5 = 0$
$6x^2 + 6x – 5x – 5 = 0$
$6x (x + 1) – 5 (x + 1) = 0$
$(x + 1) (6x – 5) = 0$
$X = -1. 6x – 5 = 0$
$\therefore x = \dfrac{5}{6}$

   b) **What are the factors influencing the pricing of a product?** [3]

Answer:
Marketers consider the following factors in setting price:

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 the, 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 up 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 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 maintain the level of turnover. On the other hand, prices are charged higher in boom period to cover the increasing cost of production and distribution.

   c) **Explain the different kinds of demand oriented pricing.** [5]

Answer:
DEMAND ORIENTED PRICING:

i) **Differential pricing or price discrimination:** There are many bases on which the open price discrimination is practiced. These are discussed below.

   - **Time Price Differentials:** it is a general practice to use the expression "the demand for a product or service", but it is important to note that demand also has a time dimension. The demand may shift in fairly short-time intervals. For example, demand for telephone facilities is more in the day time rather than at night.
   - **Use Price differentials:** Different buyers have different uses of a product or a service. For example railways can be used for long-haul or short-haul freight traffic. Railways can also be used for transporting different types of commodities. Electricity can similarly, be used for industrial or residential purposes.
   - **Quality price Differentials:** If the product caters to that group of consumers who are concerned about its quality, then the quality becomes a significant determinant of demand elasticity. The seller has, therefore, to crate differences in quality to sell his product. It must be emphasized here that the differences in quality basically depend upon the buyers' understanding of the quality. Sellers use many devices to create quality differences.
   - **Quantity Differentials:** When the seller discriminates on the basis of the quantity of purchase, it is known as quantity differentials. Quantity discounts are price concessions based on the size of the lot purchased at one time and delivered at one location. These discounts are thus related to size of a single purchase. The size of the lot purchased is measured in terms of either physical units or monetary units. Sometimes, discounts are according to the trade status, i.e., wholesaler, retailer, jobber, etc..

ii) Perceived Value pricing:

Perceived value pricing refers to fixing the price on the basis of a buyer's perception of the value of the product.

Question.8

a) What are the features of monopoly market? **[4]**

Answer:

Mono means "single" and poly means "seller". Therefore, monopoly means single seller. In economics, monopoly is said to exist when a firm is the single producer or seller of a product where there are no close substitutes for it.

Features:

1 **Single Producer**: Under monopoly there is only one producer or seller. He controls the entire supply of the commodities. Monopoly may be an individual or a partnership or a joint stock company or a state. There is no competition in monopoly market.

2. **Co close substitutes**: There are "no close substitutes" in monopoly market. There are no other firms produce the similar and nearer commodities for the product of monopoly.

3. **No Difference between Firm and Industry**: Under Monopoly market there is "no difference between firm and industry". There is only one firm and other firms should not produce the similar products which are produced by the monopoly firm. Therefore, the firm and industry both are same under monopoly market.

4. **No free entry**: The monopoly firm can get abnormal profits in the short run as well as in the long run because of strong restrictions on the entry of new firms. If the firms have freedom to enter the market then the abnormal profits will disappear but it monopoly there is no free entry and therefore the Monopoly firm may get abnormal profits in long run also.

5. **Monopolist controls only price (or) output**: Under monopoly the producer has controlling power on only price or output. He has no controlling power on both price and output simultaneously.

6. **Revenue curve falls down from left to right**: In monopoly market the revenue curves are falling down from left to right. If the monopolist wants to sell more he must reduce the price level and if he wants to fix more prices he must reduce the output.

b) Formulate Linear programming model for the following problem and solve the problem using simplex method.
A company sells two types of products, one is Liquid and the other is Solid. The Liquid contains 2 units of chemical A and 4 units of chemical B per jar and the Solid contains 3 units of each of the chemicals A and B per carton. The Liquid is sold for ₹3 per jar and the Solid is sold for ₹4 per carton. A customer requires at least 90 units of chemical A and at least 120 units of the chemical B for his business. How many of each type of Liquid should the customer purchase to minimize the cost while meeting his requirements? **[2+6]**

Answer:

	Products		Required Units
	Liquid	Solid	
Chemical A	2	3	90
Chemical B	4	3	120
Cost	3.00	4.00	

Let x_1 be the no. of liters of Liquid.

Let x_2 be the no. of kilograms of Solid.

Objective Function:

Min. $Z = 3x_1 + 4x_2$

Subject to constraints:

$2x_1 + 3x_2 \geq 90$

$4x_1 + 3x_2 \geq 120$

And $x_1, x_2 \geq 0$

By, introducing slack variables,

$2x_1 + 3x_2 - x_3 + A_1 = 90$

$4x_1 + 3x_2 - X_4 + A_2 = 120$

Max $Z = -3x_1 - 4x_2 - 0.x_3 - 0.x_4 - M.A_1 - M.A_2$

		-3	-4	0	0	-M	-M	
C_B	X_B	X_1	X_2	X_3	X_4	A_1	A_2	Min. Ratio>0
-M	90	2	3	-1	0	1	0	90/2 = 45
-M	120	4	3	0	-1	0	1	120/4 = 30
	-210M	-6M+3	-6M+4	M	M	0	0	
-M	30	0	3/2	-1	½	1	-1/2	30/3/2 = 20
-3	30	1	¾	0	-1/4	0	1/4	30/3/4 =40
	-90-30M	0	-3/2M+7/4	M	-M/2+3/4	0	3M/2-3/4	
-4	20	0	1	-2/3	1/3	2/3	-1/3	
-3	15	1	0	½	-1/2	-1/2	½	

	-125	0	0	7/6	1/6	7/6+M	-1/6+M	

$\therefore x_1 = 15$

$x_2 = 20$

$Z = 125$

Question.9

a) **Define market and what are its elements?** [2+3]

Answer:

In common parlance 'Market' refers to a place or locality where commodities are bought and sold. In an economic sense, a market is a system by which buyers and sellers bargain for the price of a product and transactions will take place in that system. Market does not limited to a particular place and personal contact between buyers and sellers is also not necessary. Market for a commodity may be local, regional, national or international.

"Market means the whole of any region which buyers and sellers are in such free intercourse with each other, that the price of the same goods tend to equally easily and quickly" as per Prof. Cournot.

As per Jevons, "The word market has been generalized so as to mean any body of persons who are in intimate business relations and carry on extensive transactions in any commodity".

Markets can be classified into two broad categories:
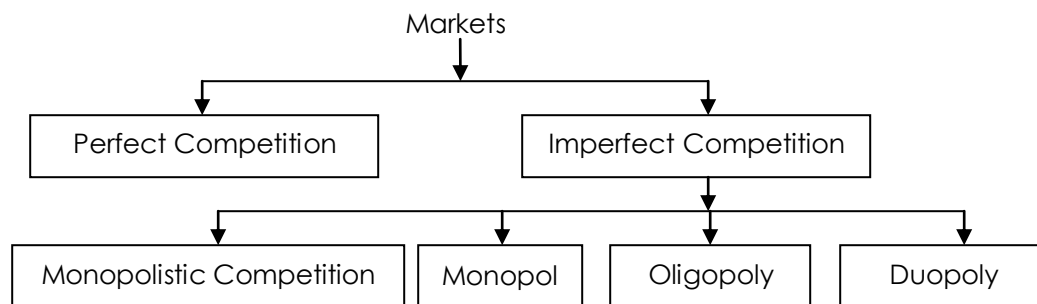
Elements of Markets:

1. Sellers and buyer agree to transaction of a particular price of a product.
2. Nature of the commodity is known to both parties.
3. Price of the product is determined under conditions of the market.
4. Competition is depend on the increase in the buyers and seller
5. If there is increase in number of buyers, price will increase and it is treated as Seller's market.
6. If there is increase in number of sellers, price will decrease, it is treated as buyer's market.
7. Free communication between the buyers and sellers.
8. Size of the market is not restricted; it may certain city, a region a country or even the entire world.
9. Product is homogenous in case of perfect competition, and the product may be differentiated in case of other markets.

b) How is price and output determination done under monopoly market? **[5]**

Answer:

The following conditions are essential for the determination of price and out put under Monopoly.

1. The main aim of the Monopolist is to get the maximum profits. He must produce the goods to that extent where MC becomes equal to MR. at that level he will get the equilibrium position and maximum profits.
2. If the monopolist increases the supply of commodities then the average revenue and marginal revenue curves fall down from left to right. If he wants to sell more output he must reduce the price level and therefore the revenue curves are falling with the increase of output.
3. Under monopoly the AR is equal to the price, so AR is the demand line.
4. Under monopoly the MR falls more rapidly than the AR.
5. The monopoly on AR line which is more than MR and AC. The differences between AC and AR are the amount of abnormal profits.

c) How is monopoly price related to elasticity of demand? **[2]**

Answer:

The concept of elasticity of demand is more useful in price determination under Monopoly. The main motive of the Monopolist is to get maximum profits. In order to get maximum profits the Monopolist fixes more price in the case of those goods in which there is in elastic demand and less price in the case of those goods in which the demand is elastic one. Therefore, monopolist generally fixes the price on the basis of elasticity of demand.