Paper- 15: MANAGEMENT ACCOUNTING – ENTERPRISE PERFORMANCE MANAGEMENT

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

The figures in the margin on the right side indicate full marks.
Attempt Question No. 1 (carrying 25 marks), which is compulsory and any five more questions (each carrying 15 marks) from the rest.

Please: (i) Answer all part of a question at one place only.
(ii) Open a new page for answer to a new question.
Working Notes should form part of the answer.
Whenever necessary, suitable assumptions should be made and indicated in answer by the candidates.

1. (a) In each of the cases given below, only one is the most appropriate option. Indicate the correct answer (=1 mark) and show your workings/reasons briefly in support of your answer (=1 mark): [2×5=10]

   (i) Nulook Ltd. Uses a JIT system and back flush accounting. It does not use a raw material stock control account During May, 8000 units were produced and sold. The standard cost per unit is ₹ 100; this includes materials of ₹ 45. During May, ₹ 4,80,000 of conversion costs were incurred.
   The debit balance on cost of goods sold account for May was
   (A) ₹ 8,00,000
   (B) ₹ 8,40,000
   (C) ₹ 8,80,000
   (D) ₹ 9,20,000

   (ii) A concern sells three products. The budgeted fixed cost for the period is ₹ 6,00,000. The budgeted contribution to sales ratio (C/S ratio) and the sales mix are as under

Product	C/S ratio	Mix
Super	25%	20%
Premium	40%	40%
Best	30%	40%

   What is the Break Even sales revenue?
   (A) ₹ 30,10,181
   (B) ₹ 15,23,312
   (C) ₹ 18,18,181
   (D) ₹ 17,60,500

   (iii) The selling price of product P is set at ₹ 1,500 for each unit and sales for the coming year are expected to be 500 units.
   If the company requires a return of 15% in the coming year on its investment of ₹ 15,00,000 in product P. The Target cost for each unit for the coming year is.
   (A) ₹ 930
   (B) ₹ 990
   (C) ₹ 1,050
   (D) ₹ 1,110

   (iv) B Ltd. Has earned net profit of ₹ 1 lakh, and its overall P/V ratio and margin of safety are 25% and 50% respectively. What is the total fixed cost of the company?
   (A) ₹ 1,20,000
   (B) ₹ 1,00,000
   (C) ₹ 1,15,000
   (D) ₹ 1,20,000

(v) If the time taken to produce the first unit of a product is 4000 hrs, what will be the total time taken to produce the 5th to 8th unit of the product, when a 90% learning curve applies?
(A) 10,500 hours
(B) 12,968 hours
(C) 9,560 hours
(D) 10,368 hours

(b) Expand the following abbreviation: [1×5]
    (i) ICS
    (ii) EOQ
    (iii) SCRS
    (iv) PMS
    (v) QIS

(c) Define the following terms: [1×5]
    (i) Zero defects
    (ii) Kaizen
    (iii) EFQM
    (iv) Simulation
    (v) Experience Curve

(d) State whether the following statements given below are 'True' or 'False'. If True, simply rewrite the given statement (1 mark). If False, state it as False (½ mark) and rewrite the correct statement (½ mark): [1x5]

    (i) It is appropriate to view the value chain from the customer's perspective, with each link being seen as the customer of the previous ling.
    (ii) One of the goals JIT seeks to achieve is batch sizes of one.
    (iii) The concept of value analysis was first conceived by Jerry Kaufman.
    (iv) 'Symbiotic relationship' is one in which the cooperative action of semi-independent sub-systems taken together produces a total output greater than the sum of their outputs taken independently.
    (v) Balance Score Card is a performance measurement tool for controlling individual productivity.

Answer to 1 (a):

(i) Correct Answer (B) ₹ 8,40,000

	₹
Cost of goods sold	8,00,000
Less: Material Cost	3,60,000
Conversion cost allocated	4,40,000
Conversion cost incurred	4,80,000
Excess charged to cost of goods sold account	40,000

Total debit on cost of goods sold account = ₹ 8,00,000 + ₹ 40,000 = ₹ 8,40,000

(ii) Correct Answer (C) ₹ 18,18,181

The weighted average contribution to sales ratio
=0.25 x 0.20 + 0.40 x 0.40 + 0.30 x 0.40 = 0.33
BE Sales = ₹ 6,00,000/0.33 = ₹ 18,18,181

(iii) Correct Answer (C) ₹ 1,050

	₹
Sales revenue 500 × ₹ 1,500	7,50,000
Return on investment required 15% × ₹ 15,00,000	2,25,000
Total cost allowed	5,25,000
Target cost per unit (5,25,000/500)	1,050

(iv) Correct Answer (B) ₹ 1,00,000

MS = Profit/PV Ratio = ₹ 4 Lakh: MS = 50%; BE Sales = (1 - 0.50) = 0.50
Hence BES = ₹ 4 lakh
Fixed Cost 25% of ₹ 4,00,000 = ₹ 1,00,000

(v) Correct Answer (D) 10,368 hours

Units	Average Time (hours)	Total Time (hours)
1	4000	4000
2	3600	7200
4	3240	12960
8	2916	23328

Total time for 5th to 8 units = 23328 - 12960 = 10368 hrs.

Answer to 1 (b):

(i) ICS: Inventory Control Systems
(ii) EOQ: Economic Ordering Quantity
(iii) SCRS: Setup Cost Reduction System
(iv) PMS: Preventive Maintenance System
(v) QIS: Quality Improvement System.

Answer to 1 (c):

(i) Zero defects: does not mean mistakes never happen, rather that there is no allowable number of errors built into a product or process and that you get it right first time.
(ii) Kaizen: Kaizen is a Japanese strategy for continuous improvement.
(iii) EFQM: stands for European Foundation for Quality Management. It is the hub of excel globally minded organizations both private & public.
(iv) Simulation: Stands as the technique of last resort by developing a model of the real phenomenon using Random Nos.
(v) Experience Curve: Effect is broader in scope than the 'Learning Curve'. It states that the no. often a task is performed; the lower will be the cost of doing it.

Answer to 1 (d):

(i) **True**. It is appropriate to view the value chain from the customer's perspective, with each link being seen as the customer of the previous ling.

(ii) **True.** One of the goals JIT seeks to achieve is batch sizes of one.

(iii) **False.** The correct answer is 'Lawrence Milies' and not 'Jerry Kaufman'.

(iv) **False.** The correct term is 'Chase strategy' and not 'Level strategy'.

(v) **False.** The correct statement is – Balance Score Card is not a performance measurement.

2. (a) A firm received an order to make and supply eight units of standard product which involves intricate labour operations. The first unit was made in 10 hours. It is understood that this type of operations is subject to 80% learning rate. The workers are getting a wages rate of ₹ 12 per hour.
   (i) What is the total time and labour cost required to execute the above order?
   (ii) If a repeat order of 24 units is also received from the same customer, what is the labour cost necessary for the second order? **[3+2]**

   (b) The manager of a book store has to decide the number of copies of a particular tax law book to order. A book costs ₹ 60 and is sold for ₹ 80. Since some of the tax laws change year after year, any copies unsold while the edition is current must be sold for ₹ 30. From past records, the distribution of demand for this book has been obtained as follows:

Demand (No of copies)	15	16	17	18	19	20	21	22
Proportion	0.05	0.08	0.20	0.45	0.10	0.07	0.03	0.02

   Using the following sequence of random numbers, generate the demand for 20 time periods (years). Calculate the average profit obtainable under each of the courses of action open to the manager. What is the optimal policy? **[10]**
   Random Numbers:

14	02	93	99	18	71	37	30	12	10
88	13	00	57	69	32	18	08	92	73

Answer to 2 (a):

80% Learning Curve results are given below:

Production (Units)	Cumulative Average Time (hours)	Total Time (hours)
1	10	10
2	8	16
4	6.4	25.6
8	5.12	40.96
16	4.096	65.54
32	3.2768	104.86

Labour time required for first eight units = 40.96 hours
Labour cost required for 8 units = 40.96 hours x ₹ 12/hr = ₹ 491.52

Labour time for 32 units = 104.86 hours

Labour time for first eight units = 40.96 hours

Labour time required for 2nd order for 24 units = 36.90 hours

Labour cost for 24 units = 63.90 hours x ₹ 12/hr = ₹ 766.80

Answer 2 (b):

Random No. Range Table			
Demand	Probability	Cumulative Probability	Random Range
15	0.05	0.05	0-4
16	0.08	0.13	5-12
17	0.20	0.33	13-32
18	0.45	0.78	33-77
19	0.10	0.88	78-87
20	0.07	0.95	88-94
21	0.03	0.98	95-97
22	0.02	1.00	98-99
	1.00		

Calculation of demand and profit for next 20 years					
Year	Random Numbers	Expected demand	No. of books unsold if stock is		
			16	17	18
1	14	17	-	-	1
2	02	15	1	2	3
3	93	20	-	-	-
4	99	22	-	-	-
5	18	17	-	-	1
6	71	18	-	-	-
7	37	18	-	-	-
8	30	17	-	-	1
9	12	16	-	1	2
10	10	16	-	1	2
11	88	20	-	-	-
12	13	17	-	-	1
13	00	15	1	2	3
14	57	18	-	-	-
15	69	18	-	-	-
16	32	17	-	-	1
17	18	17	-	-	1
18	08	16	-	1	2
19	92	20	-	-	-
20	73	18	-	-	-
Total			**2**	**7**	**18**

Statement Showing Computation of Profit			
No. of Books order	No. of Books sold	Profit	Average Profit
15	15 x 20 = 300	₹ 6000	₹ 300.00
16	16 x 20 - 2 = 318	₹ 6300 (318 x 20) - 2 x 30	₹ 315.00

| 17 | (17 x 20) - 7 = 333 | ₹ 6450
(333 x 20) - 7 x 30 | ₹ 322.50 |
| 18 | (18 x 20) – 18 = 342 | ₹ 6300
(342 x 20) - 18 x 30 | ₹ 315.00 |

Since profit is more at 17 books order, it is the best quantity and ordering is more optimum.

3. **ROLEX Ltd.**, had nearly completed a job relating to construction of a specialized equipment, whence it discovered that the customer had gone into liquidation. At this stage, the position of the job was as under:

Particulars	₹
Original cost estimate	1,75,500
Costs incurred so far	1,48,500
Cost to be incurred	30,000
Progress payment received from the original customer:	1,00,000

After searches, a new customer for the equipment has been found. He is interested to take the equipment, if certain modifications are carried out. The customer wants the equipment in its original condition but without its control device and with certain other modifications.

The costs of these additions and modifications are estimated as under:

	₹
Direct material at cost	1,050
Direct wages: Department-A 15 man-days	
Department-B 25 man-days	
Variable overheads 25% of direct wages in each department.	
Delivery costs:	1,350
Fixed overheads will be absorbed @50% of direct wages in each department.	

The following additional information is available:

(a) The direct materials required for the modification are in stock and if not used for modification of the order, they will be used in another job in place of material that will now cost ₹ 2,500.

(b) Department-A is working normally and hence any engagement of labour will have to be paid at the direct wages rate of ₹120 per man-day.

(c) Department-B is extremely busy. Its direct wage rate is ₹100 per man-day and it is currently yielding a contribution of ₹3.20 per rupee of Direct wages.

(d) Supervisory overtime payable for the modification is ₹ 1,050.

(e) The cost of control device that the new customer does not require is ₹13,500. If it is taken out, it can be used in another job in place of a different mechanism. This latter mechanism has otherwise to be bought for ₹ 10,500. The dismantling and removal of the control mechanism will take one man-day in Department-A.

(f) If the conversion is not carried out, some of the materials in the original equipment can be used in another contract in place of materials that would have cost ₹ 12,000. It would have taken two-man-days of work in Department-A to make them suitable for this purpose.

The remaining materials will realize ₹ 11,400 as scrap. The drawings which are included as a part of the job can be sold for ₹ 1,500.

You are required to calculate the minimum price that ROLEX Ltd., can afford to quote for the new customer, as stated supra. **[15]**

Answer 3.

ROLEX Ltd.

- The original cost estimate of ₹175500 is no longer valid, as the customer for whom it was prepared has gone into liquidation.
- The cost of ₹148500, which has already been incurred to date is a sunk cost and is therefore not relevant.
- The progress payment received of ₹100000 is a transaction, that is past and as such is not relevant for the revised quote decision.
- Only the future costs to be incurred in completing the hob are relevant. They are given here-below:

Particulars	₹	₹
Cost to be incurred to complete the equipment		30000
Direct materials: Opportunity cost is relevant		2500
Direct Wages:		
Dept. A 15 man-days x ₹120	1800	
Dept. B 25 man-days x ₹100	2500	
Opportunity cost of contribution lost (2500 x 3.20)	8000	12300
Variable overheads: 25% of wages (₹1800 + 2500)		1075
Delivery costs		1350
Fixed overheads – not relevant		-----
Supervisor's overtime to be incurred		1050
Control Mechanism could have fetched:	10500	
Removal Cost: Dept A: 1 man-day x 120	(120)	
Overheads (25% of ₹120)	(30)	10350
Loss of cost savings of the equipment:		
Material saving	12000	
Conversion cost: Dept. A: 2 man-days x 120	(240)	
Overheads @ 25% of 240	(60)	11700
Materials which could have been sold as scrap		11400
Drawings which could have been sold		1500
Total Relevant Cost		83225

∴ The lowest price to be quoted for a new customer is: ₹83225.

4. **(a) Distinguish between Standard Costs and Estimated Cost.** **[5]**

(b) The following data are available:

Item	Budget	Actual
No. of working days	20	22
Output per man-hour	1.0 unit	0.9 unit
Fixed Overhead cost	₹ 1,60,000	₹ 1,68,000
Man-hours per day	8,000	8,400

You are required to calculate:

(i) **Fixed Overhead efficiency Variance**
(ii) **Fixed Overhead Capacity Variance**
(iii) **Fixed Calendar Variance**
(iv) **Fixed Overhead Volume Variance and**
(v) **Fixed Overhead Cost Variance.** **2x5**

Answer 4 (a):

Standard Costs and Estimated Costs: The distinction between standard costs and estimated costs should be clearly understood. While both standard costs and estimated costs are predetermined costs, their objectives are different. The main differences between the two types of costs are:

(i) Estimated costs are intended to determine what the costs 'will' be. Standard costs aim at what costs 'should' be.

(ii) Estimated costs are based on average of past actual figures adjusted for anticipated changes in future. Anticipated wastes, spoilage and inefficiencies, all of which tend to increase costs are included in estimated costs. Standard Costs are planned costs determined on a scientific basic and they are based upon certain assumed conditions of efficiency and other factors.

(iii) In estimated costing systems, stress is not so much on cost control, but costs are used for other purposes such as fixation of prices to be quoted in advance. Standard costs serve as effective tools for cost control.

Answer 4 (b).

(i)	(ii)	(iii)	(iv)	(v)
SRSH	SRAH	SRRBH	SRBH	ARAH
1 x 166320	1 x 184800	1 x 176000		
₹166320	₹184800	₹176000	₹160000	₹168000

- SR = Budgeted FOH/Budgeted hours = 160000/160000 = 1
- RHH = (22/20) x 160000 = 176000
- AH = 22 x 8400 = 184800
- AQ = 184800 x 0.9 = 166320
- SH = 166320/1 = 166320.

(1) SRSH = Standard Cost of Standard Fixed Overheads = ₹166320
(2) SRAH = Standard Cost of Actual Fixed Overheads (or)
         = Fixed Overheads absorbed or recovered = ₹184800

(3) SRRBH = Revised Budgeted Fixed Overheads = ₹176000
(4) SRBH = Budgeted Fixed Overheads = ₹160000
(5) ARAH = Actual Fixed Overheads = ₹168000.

(i)   FOH Efficiency Variance = 1 – 2 = ₹166320 – ₹184800 = ₹18480 (A).
(ii) FOH Capacity Variance = 2 – 3 = ₹184800 – ₹176000 = ₹8800 (F).
(iii) FOH Calendar Variance = 3 – 4 = ₹176000 – ₹160000 = ₹16000 (F).
(iv) FOH Volume Variance = 1 – 4 = ₹166320 – ₹160000 = ₹6320 (F).
(v)   FOH Cost Variance = 1 – 5 = ₹166320 – ₹168000 = ₹1680 (A).

5. **(a) X Ltd. has to decide between rentals of two types of machine manufacturing the same product. Machine A, an inexpensive economy model, rents for ₹1,000 per month, but the variable production cost is ₹ 0.25 per unit. Machine B rents for ₹ 3,000 per month, but the variable production cost is only ₹ 0.10 per unit. Monthly demand varies between 10,000 and 19,000 according to the following probabilities:**

Demand	Probability
10,000	0.12
12,000	0.17
15,000	0.41
17,000	0.24
19,000	0.06

Make a comparison of the two machines. Which machine X Ltd. should rent? If the demand is definitely known to be 10,000 units, would the decision reverse? [6]

(b) What is Standard Costing? And what are the General Principles of Standard Costing? [4+5]

Answer 5 (a):

Expected No. of Units = (10,000 x 0.12) + (12,000 x 0.17) + (15,000 x 0.41) + (17,000 x 0.24) + (19,000 x 0.06)
         = 14,610

Statement showing comparative cost of Machines A & B:	A	B
	₹	₹
Variable Cost	3,653	1,461
Fixed Cost	1,000	3,000
	4,653	4,461
At this level 'X' Ltd should take on rent Machine B because costs are less.		
	₹	₹
Variable Cost	2,500	1,000
Fixed Cost	1,000	3,000
	3,500	4,000

If the demand is definitely known to be as 10,000 units they should take on Rent Machine A because its costs is less.

The level at which costs of both the machines are equal =

$$= \frac{\text{Diff. in Fixed Cost}}{\text{Diff. inVariable Cost}} \text{ OR, } \frac{\text{Change in Fixed Cost}}{\text{Change in Variable Cost}}$$

$$= \frac{3000 - 1000}{0.25 - .010}$$

$$= 13,333.33 \text{ units}$$

Answer 5 (b):

Standard Costing: During the first stages of development of cost accounting, historical costing was the only method available for ascertaining and presenting costs. Historical cost has, however, the following limitations:

(i) Historical cost is valued only for one accounting period, during which the particular manufacturing operation took place.

(ii) Data is obtained too late for price quotations and production planning.

(iii) Historical cost relating to one batch or lot of production is not a true guide for fixing price.

(iv) Past actual are affected by the level of working efficiencies.

(v) Historical costing is comparatively expensive as it involves the maintenance of a large volume of records and forms.

The limitations and disadvantages attached to historical costing system led to further thinking on the subject and resulted in the emergence of standard costing which makes use of scientifically pre-determined standard costs under each element.

General Principles of Standard Costing:

Standard Costing is defined as the preparation and use of standard cost, their comparison with actual costs and the measurement and analysis of variances to their causes and points of incidence. Standard Cost is a predetermined cost unit that is calculated from the management's standards of efficient operation and the relevant necessary expenditure. Standard Costs are useful for the cost estimation and price quotation and for indicating the suitable cost allowances for products, process and operations but they are effective tools for cost control only when compared with the actual costs of operation. The techniques of standard costing may be summarized as follows:

(i) Predetermination of technical data related to production. i.e., details of materials and labour operations required for each product, the quantum of inevitable losses, efficiencies expected level of activity, etc.

(ii) Predetermination of standard costs in full details under each element of cost, viz., labour, material and overhead.

(iii) Comparison of the actual performance and costs will the standards and working out the variances, i.e., the differences between the actual and the standards.

(iv) Analysis of the 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 measures or revision of the standard) being taken.

6. (a) 18 carpets had defects in their finish as follows. Supposing the defects follow the 'Chart' draws a control chart for the number of defects. **[8]**

No. of Defects	0	1	2	3	4	5	6
No. of carpets having specified No. of Defects	0	1	2	4	3	5	3

(b) What are the various stages/steps to be taken in the implementation of Total Quality Management? **[7]**

Answer 6 (a):

X	f	fx
0	0	0
1	1	1
2	2	4
3	4	12
4	3	12
5	5	25
6	3	18
Total	**18**	**72**

Therefore $\bar{X} = \dfrac{\sum fx}{N} = \dfrac{72}{18} = 4$

The 3σ control limits for C – chart are $\bar{c} \pm 3\sqrt{\bar{c}}$

Where $\bar{c} = \bar{x} = 4$

Therefore, Central Line (C.L) $= \bar{c} = 4$

Lower Control Limit (L.C.L) $= \bar{c} - 3\sqrt{\bar{c}}$

$$= 4 - 3\sqrt{4}$$
$$= 4 - 3.2$$
$$= 4 - 6$$
$$= -2 = 0$$

Upper Control Limit (U.C.L) $= \bar{c} + 3\sqrt{\bar{c}}$

$$= 4 + 3\sqrt{4}$$
$$= 4 + 6$$
$$= 10$$

We observe from the C-chart all the plotted points' lies within the 3σ control limits. Hence the production process is in the state of statistical quality control.

Answer 6 (b).

The following are the various stages/steps to be taken in the implementation of TQM process:

Stage 1: Identification of customers/customer groups: Through a team approach, the firm should identify major customer groups. This helps in generating priorities in the identification of customers and critical issues in the provision of decision-support information.

Stage 2: Identifying customer expectations: Once the major customer groups are identified, their expectations are then listed.

Stage 3: Identifying customer decision-making requirements and product utilities: BY identifying the need to stay close to the customers and follow their suggestions, a decision-support system can be developed, incorporating both financial as well as non-financial information.

Stage 4: Identifying perceived problems in decision-making process and product utilities: Using participative processes such as brain-storming, the firm seeks to list out its perception of problem areas and the shortcomings in meeting customer requirements.

Stage 5: Comparison with other firms and benchmarking: Detailed and systematic internal deliberations allow the firm to develop a clear idea of their own strengths and weaknesses and of the areas of most significant deficiency.

Stage 6: Customer feedback: Interaction with the customers and obtaining their views helps the firm in correcting its own perceptions and refining its process.

Stage 7: Identification of improvement opportunities and implementation of Quality improvement Process: The outcomes of the customer survey, benchmarking and internal analysis.

7. **A farmer owns an orchard which has an area of 300 acres on which he grows apples, apricots, Cherrie and plums of the total area, 200 acres of land are suitable for growing apricots and cherries and in the remaining acres of land any of the four fruits can be grown.**

   The marketing policy requires that in each season all the four types of fruits must be produced and the quantity of any one of the four fruits should not be less than 12,000 boxes.

   It is essential that the area devoted to any one should be in terms of complete acres and not in fractions of an acre. There are no physical or marketing limitations and there is an adequate supply of all types of labour.

   The details regarding the selling price, production and cost are given below

Particulars	Apples	Apricots	Cherries	Plums
Selling price per box ₹	10	10	20	30
Acreage at each present devoted to each line	120	70	80	30
Seasons yield in boxes per acre	500	150	100	200
Weight per box kg	30	30	40	20
Cost (₹):				
Direct: Material per acre	180	70	60	100
Labour:				

Growing per acre	200	150	100	130
Harvesting & Picking per box	1	1	2	3
Transport per box	2	2	1	3

Fixed overhead incurred each seasons:

	₹	Basis of apportionment to produce
Cultivation and growing	27,840	Direct labour cost incurred
Harvesting	20,900	Direct labour cost incurred
Administration	42,250	No. of boxes produced
Transport	5,110	Weight produced
Land revenue	9,000	No. of acres cultivated

Using above information, you are required to:
(1) Calculate profit and loss per box of each type of fruit that the farmer will obtain from operating the orchard on the present basis.
(2) Advise the farmer on the area to be allocated to each item in order to earn the maximum total profit. **[12+3]**

Answer to 7:

(1) **Statement showing computation of profit per box of each crop if the Orchard is maintained on the present basis.**

	Particulars		Apples	Apricots	Cherries	Plums	Total
I.	Selling Price	₹	10	10	20	30	
II.	No. of boxes		60000	10500	8000	6000	84500
III.	Total Weight in kgs (No. of boxes x Wt per		1800000	315000	320000	120000	2555000
IV.	Sales	₹	6,00,000	1,05,000	1,60,000	1,80,000	10,45,000
V.	**Variable Cost**						
	Direct Material	₹	21,600	4,900	4,800	3,000	34,300
	Growing	₹	24,000	10,500	8,000	3,900	46,400
	Harvesting	₹	60,000	10,500	16,000	18,000	1,04,500
	Transport	₹	120,000	21,000	8,000	18,000	1,67,000
		₹	2,25,600	46,900	36,800	42,900	3,52,200
VI.	Contribution (Sales — Variable Cost)	₹	3,74,400	58,100	1,23,200	1,37,100	6,92,800
VII.	**Fixed Cost**						
	Cultivation & Growing	₹	14,400	6,300	4,800	2,340	27,840
	Harvesting	₹	12,000	2,100	3,200	3,600	20,900
	Administration	₹	30,000	5,250	4,000	3,000	42,250
	Transport	₹	3,600	630	640	240	5,110

	Land Revenue	₹	3,600	2,100	2,400	900	9,000
		₹	63,600	16,380	15,040	10,080	1,05,100
VIM.	Profit	₹	3,10,800	41,720	1,08,160	1,27,020	5,87,700
IX.	Profit Per box	₹	5.18	3.97	13.52	21.17	6.95
X.	Contribution per acre	₹	3,120	830	1,540	4,570	
	Priority		**II**	**IV**	**III**	**I**	

(2) Statement showing optimum mix under the given conditions:

Particulars	Apples	Apricots	Cherries	Plums	Total
Minimum boxes to produce	12000	12000	12000	12000	
Area required for this minimum (acres)	24	80	120	60	284
Remaining Area (acres)	—	—	—	16	**16**
No. of acres	**24**	**80**	**120**	**76**	**300**

8. Write Short Notes on any three out of the following: [3x5]
  (i) McKinsey's 7-S Framework
  (ii) Succession Planning
  (iii) Matrix Organization
  (iv) Enterprise Resource Planning (ERP)

Answer 8.

(i) McKinsey's 7-S Framework:

This model considers the criteria in success of a business organization and forms an interconnected framework of seven elements, viz,:
  - Structure
  - Strategy
  - Skills
  - Systems
  - Staff
  - Style and
  - Shared Values or Super ordinate goals.

Of these, the first two i.e., Structure and Strategy from the hardware of the organization, the remaining components constitutes the software. The hard components are easily recognized as important. The soft ones are often barely recognizable. But they are equally important and are critical for the success of a firm.

Shared Values, System and Style-relate to behavioural patterns involving Staff and their Skill. The super-ordinate goals represent the culture of the organization.

The successful implementation of a strategy requires the right alignment of various activities and processes within the organization.

All the seven elements are equally important in creating a climate of commitment. The better the alignment between and among all the seven levers of the organization, the better are likely to be the results.

(ii) Succession Planning (SP) is a critical part of the human resources planning (HRP) process. HRP is the process of having the right number of employees in the right positions in the organization at the time that they are needed. HRP involves forecasting or predicting the organization's needs for labour and supply of labour and then taking steps to more people into positions in which they are needed.

Succession Planning is the systematic process of defining future management requirements and identifying candidates who best meet those requirements. SP involves using the supply of labour within the organization for future staffing needs. With SP, the skills and abilities of current employees are assessed to see which future positions they may take within the organization when other employees leave their positions. SP is typically used in higher-level organizational positions. For instance, if a company predicts that its CEO will retire in the near future, the organization may begin looking months or even years in advance to determine which current employee might be capable of taking over the position of the present retiring CEO. SP is thus aimed at promoting individuals within the organization and thus makes use of internal selection.

Basic Steps in effective SP involves:
- Human resources planning
- Assessing needs
- Developing managers
- Developing replacement charts and
- Identifying individual career growth plan.

(iii) Matrix Organization:

A Matrix Organization combines the coordination and control of the decentralized structure with the technical excellence of economics of scale of the functional structures to reap the benefits of both.

The Matrix Organization structure is suitable for projects which are not large enough to warrant a fully decentralized set-up, with all functional managers under each project. Such type of structure is suitable for projects of short duration.

While managing complex programs as in large high-tech programs, complex products and services and multinational business, organization face several coordination problems. A Matrix Organization avoids such problems, as the total responsibility for achieving the goals and objective of the program lies with Program Manager but must share resources from the various functional heads. The functional managers assigned to the projects are administrating reporting to the Project Manager but functionally to the Function Head. The distinguishing feature of the Matrix Organization is thus, the duel dimensions of management embodied in it.

The advantages of Matrix Organization structure are:
(a) Ensures better coordination and control of the decentralized structure along with achieving technical excellence and economies of scale of the technical organizations.
(b) Fosters creativity and multiple sources of diversity
(c) Broader middle-management exposure to strategic issues of the business
(d) Acts as a good ground for future managers.

There are a few disadvantages of a Matrix Organization structure like:
(a) Dual accountability creates confusion.
(b) Necessities tremendous horizontal and vertical coordination.
(c) Differences in orientation between programme and functional personnel.
(d) It becomes difficult to administer system of accountability, leading to potential conflict.

(iv) Enterprise Resource Planning (ERP) is the planning of how business resources (materials, employees, customers etc.) are acquired and moved from one state to another.

An ERP system supports most of the business system that maintains in a single database the data needed for a variety of business functions such as Manufacturing, Supply Chain Management, Financials, Projects, Human resources and customer relationship management.

An ERP system is based on a common database and a modular software design. The common database can allow every department of a business to store and retrieve information in real-time. The information should be reliable, accessible, and easily shared. The modular software design should mean a business can select the modules they need, mix and match modules from different vendors and add new modules of their own to improve business performance.

Ideally, the data for the various business functions are integrated. In practice the ERP system may comprise a set of discrete applications, each maintaining a discrete data store within one physical database.