

## INTERMEDIATE EXAMINATION

June 2023

*P-12(MA)*  
*Syllabus 2022*

### MANAGEMENT ACCOUNTING

Time Allowed: 3 hours

Full Marks: 100

*The figures in the margin on the right side indicate full marks.  
Where considered necessary, suitable assumptions may be made  
and clearly indicated in the answer.*

*Answer Question No. 1 and any five from Question No. 2, 3, 4, 5, 6, 7 and 8.*

#### Section-A (Compulsory)

1. (a) Choose the correct answer from the given alternatives: 1×12=12

(i) Profit Volume ratio is equal to:

- (A) Variable cost as a percentage of sales
- (B) Fixed cost as a percentage of sales
- (C) Excess of sales over variable cost as a percentage of sales
- (D) Total cost as a percentage of sales

(ii) A Limited produces 500 units of product in 7,500 hours against standard hours of 8,000. If standard rate per hour is ₹ 75, then labour efficiency variance will be:

- (A) ₹ 37,500 (F)
- (B) ₹ 37,500 (A)
- (C) ₹ 40,000 (F)
- (D) ₹ 38,000 (F)

(iii) Divisional managers prepare \_\_\_\_\_ without reference to the past budget or achievements.

- (A) Outcome Budgets
- (B) Performance Budgets
- (C) Programme Budgets
- (D) Zero Base Budgets



- (iv) According to Norton and Kaplan, the balanced scorecard should be used as \_\_\_\_\_.  
(A) a control system  
(B) a diagnostic system  
(C) a strategic system  
(D) All of the above
- (v) A/An \_\_\_\_\_ is an organizational unit whose manager is responsible for generating revenue and managing expenses related to current activity.  
(A) Expense Centre  
(B) Revenue Centre  
(C) Cost Centre  
(D) Profit Centre
- (vi) RTM Ltd., using Activity Based Costing (ABC), manufactures two types of products-P and Q respectively. During a period, the company incurred ₹ 50,000 as inspection cost and it worked for 10 and 15 production runs respectively for producing product P and Q. The inspection cost for product P under ABC system was:  
(A) ₹ 20,000  
(B) ₹ 30,000  
(C) ₹ 40,000  
(D) None of the above
- (vii) The minimum expected opportunity loss (EOL) is \_\_\_\_\_.  
(A) equal to EVPI  
(B) minimum Regret  
(C) equal to EMV  
(D) Both (A) and (B)
- (viii) Responsibility Accounting is used for \_\_\_\_\_.  
(A) cost control  
(B) planning  
(C) decision making  
(D) pricing

- (ix) The term \_\_\_\_\_ is used to describe a location to which overhead costs are initially assigned.
- (A) Cost driver
  - (B) Cost pool
  - (C) Activity
  - (D) Cost objects
- (x) Units produced 50,000; Selling price per unit ₹15; Variable cost per unit ₹12; Fixed costs ₹1,60,000. Calculate sales value when the profit to be earned is ₹80,000.
- (A) ₹10,00,000
  - (B) ₹12,00,000
  - (C) ₹9,00,000
  - (D) ₹14,00,000
- (xi) Economic Value Added (EVA) can be calculated as under:
- (A) Return to Equity Shareholders fund – Cost of capital Employed.
  - (B) Return to providers of fund – Cost of capital Employed.
  - (C) Return to Long term loan fund – Cost of capital Employed.
  - (D) Return to Equity Shareholders fund – Cost of Equity.
- (xii) According to DuPont methodology, the parameter(s) that drive Return on Equity (ROE) is/are:
- (A) Operating performance
  - (B) Asset usage performance
  - (C) Financial leverage
  - (D) All of the above
- (b) **State whether the following statements are “True” or “False”:** 1×7=7
- (i) Management accounting deals only with quantitative data.
  - (ii) In marginal costing both fixed and variable cost are considered for product costing and inventory valuation.
  - (iii) Unavoidable fixed costs are considered as relevant cost.
  - (iv) Standards are arrived at on the basis of past performance.
  - (v) Division under transfer pricing system is treated as Cost Centre.
  - (vi) Production budget is also known as Subsidiary Budget.
  - (vii) Return on Investment (ROI) ignores the cost of equity capital.



(c) Fill in the Blanks:

1×6=6

- (i) A \_\_\_\_\_ is a norm against which the actual performance can be measured.
- (ii) \_\_\_\_\_ analysis is the study of the interrelationship between cost, volume and profit at various levels of activity.
- (iii) \_\_\_\_\_ is an angle formed at the intersection point of total sales line and total cost line in a formal break-even chart.
- (iv) In Activity Based Costing, the allocation basis used for applying costs to services or products is called \_\_\_\_\_.
- (v) \_\_\_\_\_ is the excess of total sales over BEP sales.
- (vi) \_\_\_\_\_ theory proposes that a learner's efficiency in a task improves over time, the more the learner performs the task.

**Section-B**

(Answer any five questions)

2. (a) Distinguish between cost accounting and management accounting. 6
- (b) A Drug Store of MONSL Ltd. is presently selling three types of drugs namely 'Drug S', 'Drug T' and 'Drug Z'. It has provided the following data for year 2022-23 for each product line:

	Drugs Type		
	S	T	Z
Revenues (in ₹)	74,50,000	1,11,75,000	1,86,25,000
Cost of goods sold (in ₹)	41,44,500	68,16,750	1,20,63,750
Number of purchase orders placed (in Nos.)	560	810	630
Number of deliveries received (in Nos.)	950	1000	850
Hours of shelf-stocking time (in hours)	900	1250	2350
Units sold (in Nos.)	1,75,200	1,50,300	1,44,500

Following Additional information is also provided:

Activity	Description of Activity	Total Cost (₹)	Cost Allocation base
Drug License Fee	Drug License Fee	5,00,000	To be distributed in ratio 2: 3:5 between S, T and Z.
Ordering	Placing orders for purchases	8,30,000	2,000 purchase orders
Delivery	Physical delivery and receipt of goods	18,20,000	2,800 deliveries
Shelf Stocking	Stocking of goods	32,40,000	4,500 hours of shelf-stocking time
Customer Support	Assistance provided to customers	28,20,000	4,70,000 units sold

You are required to calculate the operating income and operating income as a percentage (%) of revenue for each product line if:

- All the support costs (other than cost of goods sold) are allocated in the ratio of cost of goods sold.
- All the support costs (other than cost of goods sold) are allocated using Activity Based Casting System.

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3. (a) RONBANI Ltd., a manufacturing company, has prepared its budget to produce 2,00,000 units. The variable cost per unit is ₹ 16 and fixed cost is ₹ 4 per unit. The company fixes its selling price to fetch a profit of 20% on total cost.

You are required to calculate:

- Present break-even sales (in quantity).
- Revised break-even sales (in quantity), if it reduces its selling price by 10%. 4



- (b) (i) Write down the differences between Absorption Costing & Marginal Costing.

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- (ii) M/s Ankita Plastics Limited provides you the data of the following products for the year 2022-23.

Particulars	1" PVC Pipe	1/2" PVC Pipe
Profit (₹)	3,00,000	60,000
Unit Selling price (₹)	200	150
P/V Ratio	40%	50%
Sales Mix = 2:1		
Joint Fixed Cost = ₹ 8,15,000		

M/s Ankita Plastics Limited expects that number of units to be sold in 2023-24 would be same as in 2022-23. However, due to upgradation in manufacturing process, the joint fixed cost would be reduced by 10% and the variable cost would increase by 8%.

You are required to calculate the following:

- Number of units of product 1" PVC Pipe and 1/2" PVC Pipe sold in 2022-23.
- Total expected profit of the company from the two products in 2023-24.

4+3

4. (a) Zen Limited produces four products– A, B, C & D in Division-X. Products are sold in the external market and the cost data for the month of July, 2022 is as under:

Particulars	Product-A	Product-B	Product-C	Product-D
Selling price per unit in external market (₹)	250	450	300	350
Hours required to produce one unit	5	10	10	8
P/V Ratio	30%	40%	45%	50%

Product-D can be transferred to Division-Y. However, maximum quantity that might be required by Division-Y is 1500 units of Product-D. The maximum sales of the products in the external market are:

Product-A - 3,000 Units

Product-B - 4,000 Units

Product-C - 3,500 Units

Product-D - 2,000 Units

What should be the transfer price for each unit of Product-D if the total labour hours available in Division-X are:

(i) 70,000 Hours

(ii) 80,000 Hours

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- (b) M/s Visual Infotech Pvt. Limited is a multiple product manufacturer. One product line consists of CCTV Camera and the company manufactures three different models. M/s Visual Infotech Pvt. Limited is currently considering a proposal from a supplier who want to supply lenses of the CCTV Camera to M/s Visual Infotech Pvt. Limited.

M/s Visual Infotech Pvt. Limited currently produces all the lenses it requires. In order to meet customers' needs, M/s Visual Infotech Pvt. Limited produces three different types of lenses for each CCTV Camera model (i.e. nine different lenses).

The supplier would charge ₹ 2,500 per lens, regardless of type of lens. For the next year, M/s Visual Infotech Pvt. Limited has projected the cost of its own production of lenses as follows (based on projected volume of 10,000 units):

Particulars	Amount (₹)
Direct Material	75,00,000
Direct Labour	65,00,000
Variable Overhead	55,00,000
Fixed Overhead:	
Factory Supervisors' Cost	35,00,000
Other Fixed Cost	65,00,000
Total Production Cost	2,95,00,000



## Additional information:

1. The equipment utilized to produce the lenses has no alternative use and no market value.
2. The space occupied by the lens production unit will remain idle if the company purchases the lenses from outside market rather than produce in-house.
3. Factory supervision cost is for salary of a Quality Manager & Production Supervisor who would be dismissed from the company if the company closes its lens production unit.

## Required:

- (i) Determine the net profit or loss of purchasing (rather than manufacturing) the lenses required for CCTV Camera.
- (ii) Determine the level of production where the company would be indifferent between buying and producing the lenses. If the future volume level is predicted to decrease, would that influence your decision?
- (iii) What would be your decision if the space presently occupied by lens production unit could be leased to another company at a lease rent of ₹ 25,00,000 per annum?

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5. (a) The following information relates to the operating performance of two divisions of SINTRA Ltd. for last year.

Particulars	Division M	Division N
Operating Income	₹ 15,00,000	₹ 25,00,000
Operating Assets	₹ 60,00,000	₹ 1,25,00,000
ROI	25%	20%

## Required:

- (i) Analyse which division is more successful in terms of ROI.
- (ii) Using 15 percent as the minimum required rate of return, calculate the Residual Income for each division.
- (iii) Identify the division which is more successful under the measure in (ii).

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- (b) (i) From the following information obtained from the books of M/s AYC Limited, calculate Economic Value Added (EVA).

Equity Share of ₹ 100 each	Nos. 1,50,000
10% Debenture of ₹ 10 each	Nos. 20,00,000
Tax rate	30%
Degree of Financial Leverage (DFL)	1.1 times
Securities Premium (₹)	1,50,00,000
Reserve & Surplus (₹) (including Capital Reserve of ₹ 90 lacs)	2,00,00,000

It is the prevailing practice for the companies in the industry to which AYC Limited belongs to pay at least a dividend of 14% p.a. to its Equity Shareholders.

- (ii) What do you mean by Learning Curve? State the applications of Learning Curve. 6+4

6. (a) ASHUB (P) Company manufactures two products – X and Y. A forecast of units to be sold in the first five month of the year is given below:

Months	Product X	Product Y
April	1,000	2,800
May	1,200	2,800
June	1,600	2,400
July	2,000	2,000
August	2,400	1,600

Other information is as follows:

Cost per unit (₹)	Product X	Product Y
Direct Materials	12.50	19.00
Direct Labour	4.50	7.00
Factory Overhead	3.00	4.00

There will be no opening and closing work-in-progress at the end of any month. Finished product (in units), equal to half of the budgeted sales of the next month, should be in stock at the end of each month (including previous year ended March).



You are required to prepare:

- (i) Production (in quantity) Budget for April to July; and
- (ii) Summarized Production Cost Budget for the period.

4+3

- (b) ANTU GLASS Company provides the following details relating to Master Budget for the year ended March 31, 2024.

Sales:	
Toughened Glass	₹ 60,00,000
Bent Glass	₹ 20,00,000
Direct material cost	60% of sales
Direct wages	20 workers @ ₹ 1,500 per month
Factory overheads:	
Indirect labour--	
Works manager	₹ 5,000 per month
Foreman	₹ 4,000 per month
Stores and spares	2.5% on sales
Depreciation on machinery	₹ 1,26,000
Light and power	₹ 30,000
Repairs and maintenance	₹ 80,000
Others sundries	10% on direct wages
Administration, selling and distribution expenses	₹ 3,60,000 per year

Required:

Prepare the Master Budget for the year ended March 31, 2024.

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7. (a) DASON Ltd., using standard costing system, has the following information for the month of September 2022.

Budgeted Fixed overheads for the month: ₹ 5,00,000. Overheads are recovered on the basis of standard machine hours. The company had budgeted for 1,00,000 machine hours for the month. During the month, the company used 1,10,000 machine hours while it should have used 95,000 machine hours for actual output. Actual Fixed Overheads for the month: ₹ 4,70,000.

Required:

Analyse the following Fixed Overhead Variances:

- (i) Fixed Overhead Volume Variance
- (ii) Fixed Overhead Efficiency Variance
- (iii) Fixed Overhead Cost Variance.

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- (b) DOXTIN Ltd. is using a system of Standard Costing and has a manufacturing division which makes a product to which the following details relate:

	Per unit (₹)
Direct Material: 5 kg. at ₹ 20	100
Direct labour: 12 hours at ₹ 20	240
Variable overheads: 12 hours at ₹ 10	120

Relevant fixed overheads are based at ₹ 1,00,000 per month and planned output is 2,000 units per month. The selling price is ₹ 550 per unit. During a recent month when output was 1,800 units, the following actual costs were incurred:

	(₹)
Direct Materials (8,500 kg)	1,72,000
Direct labour (20,000 hours)	4,20,000
Variable overhead	2,20,000
Fixed overhead	98,000
	9,10,000
Profit	40,000
Sales value	9,50,000

Required:

- Analyse and calculate the variances which occurred during the month.
- Reconcile the actual profit with budgeted profit.

7+3

8. (a) Mr. Kunch, a business man, has two independent investments A and B available to him but he lacks the capital to undertake both of them simultaneously.

He can choose to take A first and then stop, or, if A is successful then take B, or, vice versa. The probability of success on A is 0.7 while for B it is 0.4. Both investments require an initial capital outlay of ₹ 2000; and both return nothing if the venture is unsuccessful. Successful completion of A will return ₹ 3,000 (over cost), and successful completion of B will return ₹ 5,000 (over cost).

Required:

- Represent Mr. Kunch's problem as decision tree.
- Suggest Mr. Kunch as to which investment he should chose.

3 + 4



- (b) SIDSORY Ltd., a food products company, is contemplating the introduction of a revolutionary new product with new packaging to replace the existing product at a much higher price ( $S_1$ ), or, a moderate change in the composition of the existing product with a new packaging at a small increase in price ( $S_2$ ), or, a small change in the price ( $S_3$ ). The possible states of nature or events are (i) high increase in the sales ( $N_1$ ), (ii) no change in the sales ( $N_2$ ) and (iii) decrease in the sales ( $N_3$ ). The marketing department of the company worked out the pay-offs in terms of yearly net profits for each of the strategies for these events (expected sales). This is represented in the following table.

Pay-offs (in ₹)

Strategies	State of Nature		
	$N_1$	$N_2$	$N_3$
$S_1$	7,00,000	3,00,000	1,50,000
$S_2$	5,00,000	4,50,000	0
$S_3$	3,00,000	3,00,000	2,00,000

Required:

Develop a course of action for SIDSORY Ltd., based on—

- (i) Maximin Criterion
- (ii) Maximax Criterion
- (iii) Laplace Criterion
- (iv) Hurwicz Criterion [ $\alpha = 0.4$ ]

2×4=8



# SUGGESTED ANSWERS TO QUESTIONS

## SECTION – A

### 1 (a)

- (i) (C)
- (ii) (A)
- (iii) (D)
- (iv) (C)
- (v) (D)
- (vi) (A)
- (vii) (D)
- (viii) (A)
- (ix) (B)
- (x) (B)
- (xi) (B)
- (xii) (D)

### 1 (b)

- (i) False
- (ii) False
- (iii) False
- (iv) False
- (v) False
- (vi) True
- (vii) True

### 1 (c)

- (i) Standard
- (ii) Cost-volume-profit (CVP) / Break even
- (iii) Angle of Incidence
- (iv) Cost driver
- (v) Margin of safety
- (vi) Learning curve

## SECTION – B

**2 (a):**

<b>Cost Accounting</b>	<b>Management Accounting</b>
Cost accounting revolves around cost computation, cost control, and cost reduction.	Management accounting helps management make effective decisions about operations of the business.
Cost accounting prevents a business from incurring costs beyond budget.	Management accounting offers a big picture of how management should strategize.
The scope is much narrower.	The scope is much broader.
Quantitative.	Quantitative and qualitative.
Cost accounting is one of the many sub-sets of management accounting.	Management accounting is the universal set.
The task of decision making very less. Even if there is some, it is based on historic information	Historic and predictive information is the basis of decision-making.
Statutory audit of cost accounting is a requirement in some specified industries.	The audit of management accounting has no statutory requirement
Cost accounting isn't dependent on management accounting to be successfully implemented.	Management accounting is dependent on both cost & financial accounting for successful implementation.
Management, shareholders, and vendors.	Only for management.

**2 (b):**

**(a) Operating Income and Operating Income as a percentage of revenues for each product line.**

(When support costs are allocated to product lines based on costs of goods sold of each product)

	<b>Drug S (₹)</b>	<b>Drug T (₹)</b>	<b>Drug Z (₹)</b>	<b>TOTAL (₹)</b>
Operating income:	16,47,700	16,31,550	17,35,750	50,15,000
Operating income as a % of revenues:	22.12%	14.60%	9.32%	13.46%

**(b) Operating Income and Operating Income as a percentage of revenues for each product line.**

(When support costs are allocated to product lines using an activity-based costing system)

	<b>Drug S (₹)</b>	<b>Drug T (₹)</b>	<b>Drug Z (₹)</b>	<b>TOTAL (₹)</b>
Operating Income	6,56,400	14,20,300	29,38,300	50,15,000
Operating income as a % of Revenues	8.81%	12.71%	15.78%	13.46%

**3 (a):**

- i. Present Break-even Sales (quantity) = **1,00,000 units**
- ii. Revised Break-even Sales (quantity) = **1,42,858 units**



**3 (b):****(i) The differences between Absorption Costing & Marginal Costing are:**

<b>Absorption Costing</b>	<b>Marginal Costing</b>
Both fixed and variable costs are considered for product costing and inventory valuation.	Only variable costs are considered for product costing and inventory valuation.
Fixed costs are charged to the cost of production. Each product bears a reasonable share of fixed cost and thus the profitability of a product is influenced by the apportionment of fixed costs.	Fixed costs are regarded as period costs. The profitability of different products is judged by their P/V ratio.
Cost data are presented in conventional pattern. Net profit of each product is determined after subtracting fixed cost along with their variable cost.	Cost data are presented to highlight the total contribution of each product.
The difference in the magnitude of opening stock and closing stock affects the unit cost of production due to the impact of related fixed cost.	The difference in the magnitude of opening stock and closing stock does not affect the unit cost of production.
In case of absorption costing the cost per unit reduces, as the production increases as it is fixed cost which reduces, whereas, the variable cost remains the same per unit.	In case of marginal costing the cost per unit remains the same, irrespective of the production as it is valued at variable cost.

**(ii)**

A. Number of units of products- sold in 2022-23

1" PVC Pipe 10,000 units

1/2" PVC Pipe 5,000 units

B. Total expected profit of the company from the two products in 2023-24 = ₹ 3,15,500

**4 (a)**

- (i) Transfer price where total labour hours available is 70000 hours = ₹ 295
- (ii) Transfer price where total labour hours available is 80000 hours = ₹ 286

**4 (b)**

- (i) Net profit or loss of purchasing (rather than manufacturing) the lenses required for CCTV Camera. = ₹ - 20,00,000
- (ii) Indifference point = 6363.64 Units

If the future volume level is predicted to decrease, the option where Fixed cost is lower is preferable, i.e., Purchase from outside market.

- (iii) Net Profit if the lenses are purchased rather than manufacturing in-house = ₹ 5,00,000  
Therefore, the company should buy the lenses from outside market rather than making them in-house.

**5 (a)**

- (i) Here, Division M is more successful since its return (ROI) is Rs. 0.25 for each rupee invested in operating assets which is more than that of Division N i.e. 20%.
- (ii) The residual income (RI) at 15% for each division is

	Division M (₹)	Division N (₹)
Residual Income	6,00,000	6,25,000

- (iii) Division N is more successful since its RI is greater than Division M.

**5 (b)**

- (i) Economic Value Added (EVA) = ₹ 70,00,000

(ii) **Learning Curve:**

A learning curve is a function that measures how labour hours per unit reduces as units of production increases, because workers are learning and becoming expert at their jobs. The management uses this technique to predict how labour hours and labour cost will decrease as more units are produced.

**Application of Learning Curve:**

The areas in which the application of learning curve can help an organization are as follows:

1. **Improvement of productivity:** As the experience is gained, the performance of workers improves, time taken per unit of production is reduced and thus productivity increases.
2. **Cost Prediction:** Learning Curve provides better cost predictions to enable organization to quote competitive price for potential orders.
3. **Work scheduling:** Learning curve enables organizations to predict the inputs required more effectively and helps in the preparation of accurate delivery schedule.
4. **Standards setting:** Organizations prepare budgets & standards considering learning curve to avoid significant variances.

**6 (a)**

**(i) Production Budget for the period of April to July**

Month	Budgeted Production (units)	
	X	Y
April	1,100	2,800
May	1,400	2,600
June	1,800	2,200
July	2,200	1,800
<b>Total</b>	<b>6,500</b>	<b>9,400</b>



**(ii) Production cost budget for the period April to July:**

Details	Total Cost for X & Y (Rs)
Direct Material	2,59,850
Direct Labour	95,050
Factory Overhead	57,100
<b>Total</b>	<b>4,12,000</b>

**6 (b)**

**Master Budget for the year ended March 31, 2024**

		(₹)	(₹)
Total Sales			<b>80,00,000</b>
Less: Works Cost			
Prime Cost		51,60,000	
Fixed Factory Overhead		2,64,000	
Variable Factory Overhead		3,16,000	
			<b>57,40,000</b>
Gross Profit			22,60,000
Less: Adm., Selling and distribution expenses			3,60,000
<b>Net Profit</b>			<b>19,00,000</b>

**7 (a)**

- (i) Fixed Overheads Volume Variance = ₹ 25,000 (Adv.)
- (ii) Fixed Overheads Efficiency Variance = ₹ 75,000 (Adv.)
- (iii) Fixed Overheads Cost Variance = ₹ 5,000 (Fav.)

**7 (b)**

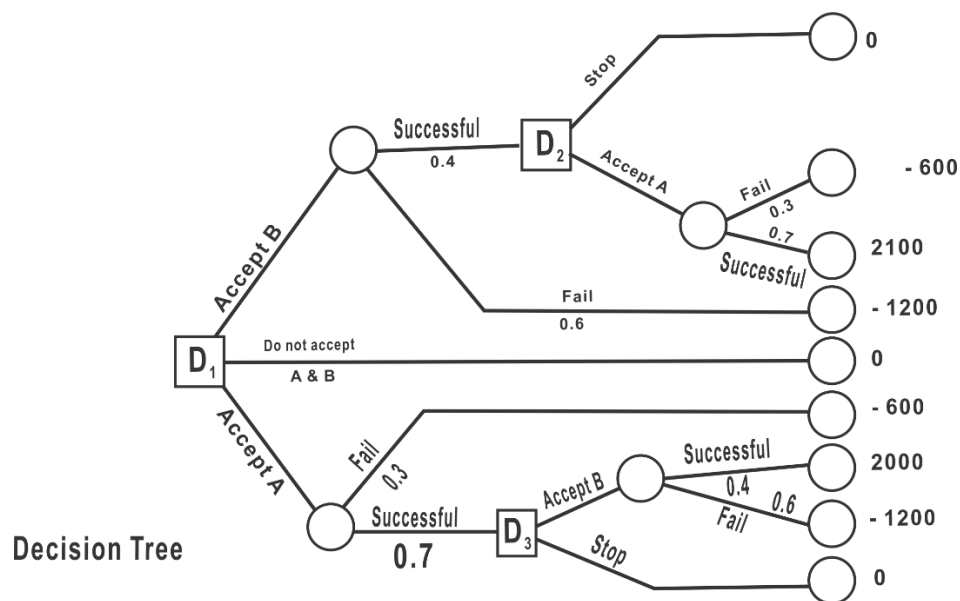
(i)

- Material Price variance = ₹2,000 (Adv)
- Material Usage variance = ₹10,000 (Fav)
- Direct wage rate variance = ₹20,000 (Adv)
- Wage Efficiency variance = ₹32,000 (Fav)
- Variable Overhead expenditure variance = ₹ 20,000 (Adv)
- Variable overhead efficiency variance = ₹16,000 (Fav)
- Fixed overhead expenditure variance = ₹2,000 (Fav)
- Fixed overhead capacity variance = ₹16,667(Adv)
- Fixed overhead efficiency variance = ₹6,667 (Fav)
- Sales margin price variance = ₹40,000 (Adv)
- Sales margin volume variance = ₹8,000 (Adv)

(ii) **Reconciliation of Profit**

	₹
Budgeted Profit	<b>80,000</b>
Favorable Variances:	<b>1,46,667</b>
Adverse variances:	<b>(1,06,667)</b>
Actual Profit (for the period):	<b>40,000</b>

**8 (a)**  
(i)



(ii) The best strategy is to accept A first, and then to accept B, if A is successful.

**8 (b)**

- (i) Maximin Criterion:  $S_3$  Strategy is to be selected.
- (ii) Maximax Criterion:  $S_1$  Strategy is to be selected.
- (iii) Laplace Criterion:  $S_1$  Strategy is Selected.
- (iv) Hurwicz Criterion ( $\alpha = 0.4$ ):  $S_1$  Strategy is Selected.