INTERMEDIATE EXAMINATION **SET 1**

MODEL ANSWERS **TERM – JUNE 2026**

PAPER – 12 **SYLLABUS 2022**

MANAGEMENT ACCOUNTING

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

The figures in the margin on the right-hand side indicate full marks.
Where considered necessary, suitable assumptions may be made and clearly indicated in the answer.
All working notes should form part of your answer.

Answer Question No.1 in Section A which is compulsory.
Further answer any five from question no. 2 to question No. 8 in Section B.
The figures in the margin on the right side indicate full marks.

SECTION – A (Compulsory)

Answer all the questions. Each question carries two marks.

1. Choose the correct option from the given alternatives: **[15 × 2 = 30]**

(i) Management Accounting focused on reduction of Waste of resources in production processes by elimination "no-value activities" during the _____

(A) 1st Stage
(B) 2nd Stage
(C) 3rd Stage
(D) 4th Stage

(ii) Which one of the following is not true of Contemporary Techniques?

(A) Marginal Costing
(B) SWOT Analysis
(C) Target Cost
(D) Just in time

(iii) A _____ activity support the production of a Specific product or Service.

(A) Product - level
(B) Batch - Level
(C) Unit - Level
(D) Facility - Level

(iv) ALM Ltd. manufactures two types of products S, and Z following Activity based Costing (ABC) System. During the month of October 2025, the Company incurred ₹1,56,000 as inspection Cost and it was worked for 17 and 22 production runs respectively for producing Products S, and Z. The inspection Costs for Product Z under the ABC System was:

(A) ₹ 88,000
(B) ₹ 32,000
(C) ₹ 48,000
(D) ₹ 38,000

(v) **The Chart that shows the relationship between Profit and Sales Volume is _____.**

(A) **Break-even Chart**
(B) **Profit – Volume Chart**
(C) **Contribution Break-even Chart**
(D) **None of the above**

(vi) **For the coming year, a manufacturing company has budgeted as under:**
Contribution / Sales (C/S) Ratio = 45%
Margin of Safety Ratio = $33\frac{1}{3}\%$
Fixed Costs = ₹ 5,85,000.
What will be the profit for the coming year?

(A) **₹3,25,000**
(B) **₹2,92,500**
(C) **₹3,00,000**
(D) **₹3,20,000**

(vii) **A radio manufacturer finds that its costs ₹6.25 per unit to make component Meu and the same is available in the market at ₹5.75 each. Continuous supply is also fully assured. The break-down cost per unit as follows: Materials ₹2.75, Labour ₹1.75 other variable expenses ₹0.50, Depreciation and other fixed cost ₹1.25. What would be your decision, if the supplier offered the component at ₹4.85 per unit?**

(A) **Make**
(B) **Buy**
(C) **Sell**
(D) **None of the above**

(viii) **Which of the following is / are not method of transfer pricing?**

(A) **Total cost Method**
(B) **Marginal cost Method**
(C) **Market price Method**
(D) **Skimming price Method.**

(ix) **Z Ltd. uses a Standard Costing System.**
The following information pertains to direct Labour Costs for a Month.

Standard Labour Rate per hour	**₹15**
Actual Labour hours worked	**12,000 hours**
Standard Labour hours for production	**10,000 hours**
Labour rate variance	**₹18,000 (Adv.)**

What will be the actual labour rate per hour?

(A) **₹16.50**
(B) **₹12.50**
(C) **₹13.50**

(D) ₹21.27

(x) R Ltd. a manufacturer of Product N using Standard Costing System provides the following information pertaining to Fixed overhead for the month of September 2025.

Budgeted Fixed Overhead	**₹ 60,000**
Budgeted hours	**2,000**
Actual Fixed Overhead incurred	**₹ 61,000**
Actual hours worked	**2,100**

Fixed overhead Cost Variance will be _____

(A) ₹ 2,000 (Adv.)
(B) ₹ 2,000 (Fav.)
(C) ₹ 1,000 (Adv.)
(D) ₹ 1,000 (Fav.)

(xi) A budgeting process which demands each manager to justify his entire budget in detail from beginning is _____

(A) Master Budget
(B) Zero Base Budgeting
(C) Functional Budget
(D) None of the above.

(xii) To complete the first setup on a new machine an employee took 100 minutes. Using an 80% Incremental unit-time learning model indicates that the second set-up on the new machine is expected to take.

(A) 80 minutes
(B) 60 minutes
(C) 40 minutes
(D) 30 minutes

(xiii) Which one of the following responsibility Centers is an organizational unit whose manager is responsible for generating revenues and managing expenses related to current Activity?

(A) Expense or Cost Center
(B) Profit Center
(C) Revenue Center
(D) Investment Centre

(xiv) Mr. Dinesh, a businessman is trying to decide which of the three mutually exclusive projects to undertake. Each of the projects could lead to varying net profit under three possible Scenarios.

Scenarios	Profits / Project		
	P	Q	T
I	110	70	50
II	80	130	90

III	(10)	20	80

Using Minimax which Project is to be selected?

(A) T
(B) Q
(C) P
(D) None of the above.

(xv) The decision maker's knowledge and experience may influence the decision-making process when using the criterion of_____.

(A) Maximum
(B) Realism
(C) Maximin
(D) Maximax Regret

Answer:

i	ii	iii	iv	v	vi	vii	viii	ix	x	xi	xii	xiii	xiv	xv
C	A	A	A	B	B	B	D	A	B	B	B	B	A	B

Section – B

Answer any Five Questions from Question No. 2 to Question No. 8.
Each Question carries 14 Marks. **[5 × 14 = 70]**

2. (a) "The Scope of Management Accounting includes all information which is provided to Management for financial analysis and interpretation of the business operations" – In this Context align the scope of Management Accounting.

[7]

(b) M Ltd. is engaged in production of three types of Fruit Juices: Apple, Orange and Mixed Fruit. The following cost data for the month of March 2025 are as under:

Particulars	Apple	Orange	Mixed Fruit
Units produced and sold	10,000	15,000	20,000
Material per unit (₹)	8	6	5
Direct Labour per unit (₹)	5	4	3
No. of Purchase Orders	34	32	14
No. of Deliveries	110	64	52
Shelf Stocking Hours	110	160	170

Overheads incurred by the Company during the month are as under:

	(₹)
Ordering Costs	**64,000**
Delivery Costs	**1,58,200**
Shelf stocking Costs	**87,560**

Required:

Calculate the cost driver's rate.

Calculate the total cost of each product using Activity Based Costing. **[7]**

Answer:

(a) The Scope of Management Accounting is aligned as under:

(i) Financial Accounting: Financial accounting though provides historical information but is very useful for future planning and financial forecasting. Designing of a proper financial accounting system is a must for obtaining full control and co-ordination of operations of the business.

(ii) Cost Accounting: It provides various techniques of costing like marginal costing, standard costing, differential and opportunity cost analysis, etc., which play a useful role not operation and control of the business undertakings.

(iii) Budgeting and Forecasting:Forecasting on the various aspects of the business is necessary for budgeting. Budgetary control controls the activities of the business through the operations of budget by comparing the actual with the budgeted figures, finding out the deviations, analysing the deviations in order to pinpoint the responsibility and take remedial action so that adverse things may not happen in future. Both the techniques are necessary for management accountant.

(iv) Cost Control Procedures: These procedures are integral part of the management accounting process and includes inventory control, cost control, labour control, budgetary control and variance analysis, etc.

(v) Reporting: The management accountant is required to submit reports to the management on the various aspects of the undertaking. While reporting, he may use statistical tools for presentation of information as graphs, charts, pictorial presentation, index numbers and other devices in order to make the information more impressive and intelligent.

(vi) Methods and Procedures : It includes in its study all those methods and procedures which help the concern to use its resources in the most efficient and economical manner. It undertakes special cost studies and estimations and reports on cost volume profit relationship under changing circumstances.

(vii) Tax Accounting : It is an integral part of management accounting and includes preparation of income statement, determination of taxable income and filing up the return of income etc.

(viii) Internal Financial Control : Management accounting includes the internal control methods like internal audit, efficient office management, etc.

(ix) Interpretation : Management accounting is closely related to the interpretation of financial data to the management and advising them on decision-making.

(x) Office Services: The management accountant may be required to maintain and control office services in some organizations. This function includes data processing, reporting on the best use of mechanical and electronic devices, communication, etc.

(b)

(i) Assessment of Cost Driver's Rate:

	Apple	Orange	Mixed Fruit
Material per unit	8	6	5
Direct Labour per unit	5	4	3
O/H. per unit	12.609	6.816	4.0715
Product Cost P.U.	25.609	16.816	12.0715

Types of Cost	Amt. of Cost	Cost Driver	Cost driver	Cost Driver's rate
Ordering cost	64,000	No. of order	80	800
Delivery cost	1,58,200	No. of Delivery	226	700
Shelf Stocking	87,560	Shelf Stocking	440	199

(ii) Analysis of Total Cost of each product:

Types of Cost	Apple	Orange	Mixed fruit
Ordering Cost	(800 x 34) = 27,200	25,600	11,200
Delivery Cost	(700 x 110) = 77,000	44,800	36,400
Shelf Stocking	(199 x 110) = 21,890	31,840	33,830
	1,26,090	**1,02,240**	**81,430**
Output (Units)	10,000	15,000	20,000
O / H. P. U	12.609	6.816	4.0715
Materials	80,000	90,000	1,00,000
Direct Labour Cost	50,000	60,000	60,000
Overhead Cost	1,26,090	1,02,240	81,430
Total Cost	**2,56,090**	**2,52,240**	**2,41,430**

3. (a) SONA MOTORS Ltd. has an annual production of 90,000 units for a motor component. The component cost structure is as below:

	₹
Materials p.u.	270
Labour p.u. (25% fixed)	180
Overheads : Variable p.u.	90
Fixed p.u.	135
	675

(i) The purchase manager has an offer from a supplier who is willing to supply the components at ₹540.
Required:
Assess Critically should the component be purchased and production stopped.

(ii) Assume the resources now used for this component's manufacture are to be used in producing another new product for which selling price is ₹ 485. In such as case, the material price will be ₹ 200 per unit, 90,000 units of this product can be produced at the same cost basis as above for labour and overheads.
Analyze whether it would be profitable to divert the resources to manufacture the new product, on the footing that the component currently being produced would be purchased from the market instead of being produced. [7]

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

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

The Manager of Division M anticipates that Division N will want a transfer price of ₹22. If he does not sell to Division N, ₹40,000 of fixed costs and ₹2,00,000 of assets can be avoided. The Manager of Division M would have no control over the proceeds from the sale of the assets and is judged primarily on its rate of return.
Required:
(i) Analyze whether the Manager of Division M should transfer its products at ₹22 to Division N.
(ii) Integrate the lowest price that the Division M should accept. [7]

Answer:
(a)

(i) Statement of Cost and Savings:

Marginal Cost of 'Marking'	Per Unit (₹)	Total (₹)
Materials	270	2,43,00,000
Labour	135	1,21,50,000
Overheads	90	81,00,000
Cost of Buying	495	4,45,50,000
	540	4,86,00,000
Saving if made	45	40,50,000

It is clear from the above calculation that production should not be stopped.

(ii) If the resources now used for this component are to be used in producing another new product :

	Selling Price of New Product (P.u.) (₹)			485
LESS:	Marginal Costs per unit: (₹)			
	Materials		200	
	Labour		135	
	Overheads		90	425
	Contribution (₹)			60

In such a case the component will have to purchased from the Market and the loss will be:

		₹
Buying Price per unit		540
Marginal Cost per unit		495
	Loss	45

Thus by using the resources for a new product and purchasing the component from the market the new saving per unit will be ₹ 15 (60 – 45). If 90,000 components are purchased from the market and same quantity of new product is produced, there will be saving of ₹ 13,50,000.

Hence, it would be profitable to divert the resources.

(b)

(i) Comparative Profitability Statement of Division M:

(Amount in ₹)

Particulars	Sales at ₹ 25	Transfer at ₹ 22	Don't transfer
Sales Revenue: Market	12,50,000	12,50,000	12,50,000

Sales (50,000 x 25)			
Transfer to Division	2,50,000 (1,0000 x 25)	2,20,000 (10,000 x 22)	
Total (A)	15,00,000	14,70,000	12,50,000
Variable Cost (at Rs 15 / Unit)	9,00,000	9,00,000	7,50,000
Fixed Cost	3,00,000	3,00,000	2,60,000
Total (B) ₹	12,00,000	12,00,000	10,10,000
Total Profit (A – B) (₹)	3,00,000	2,70,000	2,40,000
Total Assets (₹)	12,00,000	12,00,000	10,00,000
ROI (Percentage)	25%	22.50%	24%

Manager of Division M should not transfer product at Rs 22 / unit to Division N because it is less than its selling price i.e. Rs 25 / unit and will get low rate of return at Rs 22 / unit by 2.5% (25% — 22.50%).

(ii) The lowest transfer price acceptable to Division M is one, which maintains its rate of return of 24% (ROI without selling to Division N); = (Total Sales Revenue – Total Cost]) / Total Assets = 0.24

or, [(₹ 12,50,000 + 10,000 x Transfer Price (TP)) – 12,00,000] ÷ ₹ 12,00,000 = 0.24

or, 10,000 TP = 2,88,000 – 50,000 = 2,38,000

or, (Transfer Price) TP = 2,38,000 + 10,000 = 23.80 i.e. ₹ 23.80

The lowest transfer price acceptable to Division — M is ₹ 23.80 per unit.

4. (a) The Cost Volume – Profit relationship of M Ltd. is describe by the equation Y = ₹2,40,000 + 0.6x, in which x represents sales revenue and Y is the Total Cost (FC + VC) at the Sales revenue/ Volume represented by X.

Based on above information you are required to answer the following:

Required:

Calculate the P/V. Ratio

Calculate the Sales Volume that must be obtained to Break-even for the Company?

Analyse Sales volume to be required to produce an income of ₹100000. [7]

(b) TNT Ltd., a manufacturing company presently operating at 80% of its installed capacity, has received a bulk export order from the Middle East. The execution of this order would require utilisation of an additional 40% of the factory's capacity. The offer is conditional — the company must either accept and execute the entire order at a price 10% lower than the prevailing domestic selling price or reject it outright.

The relevant details of the current sales and cost structure are provided below:

Sales	**₹ 16.00 lakhs**

Direct Material	**₹ 5.80 lakhs**
Direct Labour	**₹ 2.40 lakhs**
Variable Overheads	**₹ 0.60 lakhs**
Fixed Overheads	**₹ 5.20 lakhs**

The following alternatives are available to the management.

(i) Continue with domestic sales and reject the export order.

(ii) Increase capacity so as to accept the export order and maintain the domestic demand by:

(i) Purchasing additional plant and increasing 10% capacity and thereby increasing fixed overheads by ₹ 65,000 and

(ii) Working overtime at one and half time the normal rate to meet balance of the required capacity.

Required:

Analyze each of the above alternatives and suggest the best one. **[7]**

Answer:

(a)

i. P / V Ratio

Y = Total Cost = Fixed Cost + Variable Cost

= 240000 + 0.6 χ . χ = Sales Revenue

Variable Cost = 0.6 χ

So, Sales – VC = Contribution,

Contribution = 0.4 χ

$$\text{P / V Ratio} = \frac{0.4\chi}{\chi} = 40\%$$

ii. Break-even Sales

Y = Total Cost = Fixed Cost + Variable Cost

BES x P/V = Fixed Cost = 240000

At BEP Fixed Cost = Contribution

$$\text{So, BES} = \frac{FC}{P/V} = \frac{240000}{0.40} = ₹6,00,000$$

iii. Required Sales to Produce an Income of ₹ 1,00,000

Sales Volume for Profit of ₹ 1,00,000 :

Sales x P/V Ratio = FC + P

= 2,40,000 + 1,00,000 = 3,40,000

iv. Hence Sales = 3,40,000 / 0.40 = ₹8,50,000

(b) Comparative Analysis of Profitability

(₹ In Lakh)

		Present Sales 80 %	40 % - Foreign & 80 % - Domestic
1.	Sales	16.00	(7.20 + 16.00) = 23.20
2.	Variable Cost		
	Direct Material	5.80	8.70
	Direct Labour	2.40	3.60
	Variable Overheads	0.60	0.90
	Overtime Premium	---	0.45
		8.80	13.65
3.	Contribution	7.20	9.55
4.	Fixed Cost	5.20	(5.20 + 0.65) = 5.85
5.	Profit	2.00	3.7

Suggestion : As per the above calculations, it is evident that the profit is maximum in Alternative (ii) accepting the foreign order fully and maintaining present domestic sales. It is the best alternative to be pursued by the Management.

5. (a) The standard labour component and the actual labour component engaged during the month are given below:

	Skilled	Semi-skilled	Unskilled
Standard number of workers in a group	**32**	**12**	**6**
Standard wage rate (₹ per hour)	**3**	**2**	**1**
Actual number of workers employed during the month in the group	**28**	**18**	**4**
Actual wage rate (₹ per hour)	**4**	**3**	**2**

During the 40-hour week, the gang produced 1,800 standard labour hours of work.

Required:

Calculate Labour rate variance, Labour efficiency variance. Labour mix variance, and Total labour cost variance.

[7]

(b) The following information has been obtained from the records of PXT Ltd. for the month ended February'2028:

Particulars	Budget	Actual
Production (units)	**4,000**	**3,800**
Working Days	**20**	**21**
Fixed Overhead (₹)	**40,000**	**39,000**

Calculate the following:

(i) Expenditure Variance,
(ii) Calendar Variance,
(iii) Capacity Variance,
(iv) Efficiency Variance,
(v) Volume Variance,
(vi) Fixed Cost Variance. **[7]**

Answer:

(a)

Basic Calculation

Particulars	SH X SR	AH X AR	AH X SR	RSH X SR
	(1)	(2)	(3)	(4)
Skilled	1,152 X 3	1,120 X 4	1,120 X 3	1,280 X 3
Semi-skilled	432 X 2	720 X 3	720 X 2	480 X 2
Unskilled	216 X 1	160 X 2	160 X 1	240 X 1
Total	4,536	6,960	4,960	5,040

Note 1: Actual Hrs = Actual employees X Actual Working hour per week

Particulars	Calculation	Actual Hrs
Skilled	28 X 40	1,120
Semi-skilled	18 X 40	720
Unskilled	4 X 40	160
TOTAL		2,000

Note 2: Standard No. of weeks worked = SH of work produced X Standard Gang Ratio

Particulars	Calculation	Actual Hrs
Skilled	1,800 X 32/50	1,152
Semi-skilled	1,800 X 12/50	432

Unskilled	1,800 X 6/50	216

Note 3: Calculation of Revised Standard Hours (RSH):

Total Actual Hrs worked = 2,000

RSH of Skilled Employees = 2,000 X 32/50 = 1,280

RSH of Semi-Skilled Employees = 2,000 X 12/50 = 480

RSH of Unskilled Employees = 2,000 X 6/50 = 240

Calculation of Labour Cost Variances:

Labour Rate Variance = (3) – (2) = ₹2,000 (A)

Labour Efficiency Variance = (1) – (3) = ₹424 (A)

Labour Mix Variance = (4) – (3) = ₹80 (F)

Labour Cost Variance = (1) – (2) = ₹2,424 (A)

(b)

SD X SR	AFOH	BFOH	AD X SR	RFO
(1)	(2)	(3)	(4)	(5)
19 X ₹2,000	₹39,000	₹40,000	21 X 2,000	40,000/20days X 21 days
₹38,000	₹39,000	₹40,000	₹42,000	₹42,000

Calculation of Fixed Overhead Cost Variances:

(i) Expenditure Variance = (3) – (2) = ₹1,000 (F)
(ii) Calendar Variance = (5) – (3) = ₹2,000 (F)
(iii) Capacity Variance = (4) – (5) = NIL
(iv) Efficiency Variance = (1) – (4) = ₹4,000 (A),
(v) Volume Variance = ₹2,000 (A)
(vi) Fixed Cost Variance = ₹1,000 (A)

6. (a) A company manufactures two products X and Y. A forecast of unit to be sold in the first 4 months of the year is given below:

Months	Product X	Product Y
January	**1,000**	**2,800**
February	**1,200**	**2,800**
March	**1,600**	**2,400**
April	**2,000**	**2,000**
May	**2,400**	**1,600**

Other information are as follows:

Cost per unit (₹)	Product X	Product Y
Direct Material	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 (WIP) at the end of any month and finished product (in units) is equal to half of the budgeted sale of the next month should be in stock at the end of each month (including previous year December).

Prepare:

(i) Production Budget for the period January to April, and

(ii) Summarized production Cost Budget.

[7]

(b) RG Ltd., a manufacturing company, prepared the following budget for the year 2025–26.

		Percentage to total Sales
Direct Materials		40
Direct Labour		20
Factory Overheads	Variable	10
	Fixed	10
Selling and Adm. Overheads	Variable	5
	Fixed	12
Profit		3
Sales		100

After reviewing the half-yearly performance, it was observed that the company would be able to achieve only 80% of the originally budgeted sales. Accordingly, the revised sales estimate was worked out at ₹1,080 lacs, after factoring in a 10% reduction in the selling price.

Required:

Analyze and Prepare a Statement showing the breakup of the original and revised budget for the year 2025 – 26. **[7]**

Answer:

(a) (i) Production Budget of X and Y for the period January to April

Budgeted production = Budgeted Sales + Desired Closing inventory – Opening inventory.

	Sales		Closing Stock		Opening Stock		Production	
	X	Y	X	Y	X	Y	X	Y
January	1,000	2,800	600	1,400	500	1,400	1,100	2,800
February	1,200	2,800	800	1,200	600	1,400	1,400	2,600

March	1,600	2,400	1,000	1,000	800	1,200	1,800	2,200
April	2,000	2,000	1,200	800	1,000	1,000	2,200	1,800
Total							6,500	9,400

Production Cost Budget:

	Product X			Product Y			X & Y
	Cost/Unit	Production	Total Cost (₹)	Cost/Unit	Production	Total Cost (₹)	Total Cost (₹)
Direct Materials	12.5	6,500	81,250	19	9,400	1,78,600	2,59,850
Direct labour	4.5		29,250	7		65,800	95,050
Factory O/H	3		19,500	4		37,600	57,100
Total	20		1,30,000	30		2,82,000	4,12,000

(b)

Statement showing the break-up of the original and revised budget for a year:

(₹ in Lakhs)

	Original Budget	Revised Budget
Sales Revenue : (A) (Refer to Working notes 1 & 2)	1500	1080
Variable Costs :		
Direct Materials	600	480 (40 % x Rs 1200)
Direct Labour	300	240 (20 % x Rs 1200)
Factory Overheads	150	120 (10 % x Rs 1200)
Selling and Admn., overheads	75	60 (5 % x Rs 1200)
Total variable costs : (B)	1125	900
Contribution : {(C) = (A) – (B)}	375	180
Fixed overheads :		

Factory overheads	150	150
Selling and Admn. Overheads	180	180
Total Fixed overheads : (D)	330	330
Profit / (Loss) : {(C) – (D)}	45	(150)

Working notes:

1. Revised budgeted sales (after taking into account 10% reduction in selling price.

   If revised budgeted Sales at revised S.P. is ₹ 1080 lacs then the revised budgeted sales at original S. P. will is $\frac{\text{Rs}\,100}{\text{Rs}\,90} \times \text{Rs}\,1080\,\text{Lacs}$ = ₹ 1200 Lacs.

2. Original Budgeted Sales :

   If the revised budgeted Sales at original S. P. is ₹ 1200 Lacs then the original budgeted Sales at Original SP is = $\frac{\text{Rs}\,100}{\text{Rs}\,80} \times \text{Rs}\,1200\,\text{Lacs}$ = ₹ 1500 Lacs.

7. (a) Kolkata Sports Co (KSC) is a large manufacturing company specialising in the manufacture of a wide range of sports clothing and equipment. The company has two divisions: Clothing (Division C) and Equipment (Division E). Each division operates with little intervention from Head Office and divisional managers have autonomy to make decisions about long-term investments.

KSC measures the performance of its divisions using return on investment (ROI), calculated using controllable profit and average divisional net assets. The target ROI for each of the divisions is 18%. If the divisions meet or exceed this target the divisional managers receive a bonus.

Last year, an investment which was expected to meet the target ROI was rejected by one of the divisional managers because it would have reduced the division's overall ROI. Consequently, KSC is considering the introduction of a new performance measure, residual income (RI), in order to discourage this dysfunctional behaviour in the future. Like ROI, this would be calculated using controllable profit and average divisional net assets.

The draft operating statement for the year, prepared by the company's trainee accountant, is shown below:

	Division C (₹'000)	Division E (₹'000)
Sales revenue	**3800.00**	**8400.00**
Less variable costs	**1400.00**	**3030.00**
Contribution	**2400.00**	**5370.00**
Less fixed costs	**945.00**	**1420.00**
Net profit	**1455.00**	**3950.00**
Opening divisional controllable net assets	**13000.00**	**24000.00**
Closing divisional controllable net assets	**9000.00**	**30000.00**

Notes:

I. Included in the fixed costs are depreciation costs of ₹165,000 and ₹460,000 for Divisions C and E respectively. 30% of the depreciation costs in each division relates to assets controlled but not owned by Head Office. Division E invested ₹20,00,000.00 in plant and machinery at the beginning of the year, which is included in the net assets figures above, and uses the reducing balance method to depreciate assets. Division C, which uses the straight-line method, made no significant additions to non-current assets. It is the policy of both divisions to charge a full year's depreciation in the year of acquisition.

II. Head Office recharges all of its costs to the two divisions. These have been included in the fixed costs and amount to ₹620,000 for Division C and ₹700,000 for Division E.

III. KSC has a cost of capital of 12%.

Required:

(i) Calculate ROI of each of the division.

(ii) Calculate Residual Income of each division and comment on the results of this performance measure. [7]

(b) NATAL Ltd. has just completed the manufacture of 40 units of a new product. The manufacturing costs are:

	₹
Direct Material	3,00,000
Direct Labour: 9000 hours @ ₹20/hr.	1,80,000
Variable Overheads @ ₹10/hr.	90,000
Special Tool (re-usable)	15,000
Fixed Overheads apportioned	1,00,000
	6,85,000

The Company policy is to add a profit of 15% on selling price.

The Company received another order for 120 units of this product for which the company quoted, based on its policy on absorption cost basis, a price of ₹20,147 per unit. The customer struck the order to ₹14000 per unit.

The Company is short of work and so is keen to take up more orders, but it is reluctant to accept this order price because it is against the policy to accept any price below its cost. The company experience a learning curve of 90%.

Required:

(i) Identify the gain or loss arising from acceptance of the order of ₹14,000 per unit.

(ii) Advice whether the company should accept this order for 120 units or not. [7]

Answer:

(a)

(i) Calculation of Controllable Profit & ROI

	C	E
	₹'000	₹'000
Net profit	1,455.00	3,950.00
Add back depreciation on non controllable assets	49.50	138.00
Add back Head Office costs	620.00	700.00
Controllable profit	2,124.50	4,788.00
Average divisional net assets		
	₹'000	₹'000
Opening assets	13,000	24,000
Closing assets	9,000	30,000
Average assets	11,000	27,000
ROI (%)	19.31	17.73

(ii) Calculation of RI:

	C	E
	₹'000	₹'000
Controllable Profit	2,124.50	4,788.00
Less: Imputed Charge on Assets @12%	1,320.00	3,240.00
Residual Income	804.50	1,548.00

Comment:

Whilst Division C has exceeded the target ROI, Division E has not. If controllable profit in relation to revenue is considered, Division C's margin is 56% compared to Division E's margin of 57%, so Division E is actually performing slightly better. However, Division E has a larger asset base than Division C too, hence the fact that Division C has a higher ROI.

Since Division E appears to be a much larger division and is involved in sports equipment manufacturing, then it could be expected to have more assets. Division E's assets have gone up partly because it made

substantial additions to plant and machinery. This means that as well as increasing the average assets figure, the additions will have been depreciated during the year, thus leading to lower profits. This may potentially have had a large impact on profits since Division E uses the reducing balance method of depreciation, meaning that more depreciation is charged in the early years.

Based on the ROI results, the manager of Division C will get a bonus and the manager of Division E will not. This will have a negative impact on the motivation level of the manager of Division E and may discourage him from making future investments, unless a change in the performance measure used is adopted.

(b)

(i) Computation of Selling Price of First Order for 40 Units.

a.	Total Costs (As given) (₹)	6,85,000	
b.	Number of units	40 units	
c.	Average cost per unit (₹)	17,125	
d.	Since profit is 15 % on price, it is 15 / 85 on Cost (₹)	3,022	
e.	Price Quoted (Cost + Profit) (₹)	20,147	(½)

(ii) Computation of Time required for 120 units:

No. of Units	Time Required per unit (H₹)	Total Time Required	Cumulative Time (H₹)
40	9000 hrs / 40 units = 225	(given) 9000 hours	9,000
80	225 x 0.90 = 202.5	80 units x 202.5 hours per unit	16,200
160	202.5 x 0.90 = 182.25	160 units x 182.25 hours per unit	29,160

Time required for 120 units = Cumulative Time required for 160 units – Time required for first 40 units = 29160 – 9000 = 20160 H₹(1½)

Analysis of Profitability of Order of 120 units

Particulars	Computation	₹
Direct Material	(₹ 3,00,000 / 40) x 120 Units	9,00,000
Direct Labour	20160 hours x ₹ 20 per hours	4,03,200
Variable Overheads	20160 hours x ₹ 10 per hours	2,01,600
Special Tools (Re-usuable)	Hence, Relevant Cost is Nil	Nil
Fixed Overheads	Idle Capacity – Not Relevant	Nil
Total Cost		15,04,800

Cost per unit	₹ 1504800 / 120	12,540
Price Offered		14,000
Hence, Profit per unit		1,460
Total Profit from 120 units	1460 x 120 Units	1,75,200

Decision :

It is revealed from the above Statement that total Cost per unit of order of 120 units is lower than the offered price (12,540 < 14,000) resulting in earning of Company amount to ₹1,75,200. So the Company should accept the order of 120 units @ Rs 14,000.

8. (a) LAXMI BANK has been approached by a customer seeking a loan of ₹20,000 for a period of one year. The current lending rate of the bank applicable to such loans is 18% per annum. If the loan application is rejected, the bank has the alternative option of investing the ₹20,000 in the money market, which yields a return of 10% per annum. Based on past records, it is estimated that 5% of customers default on their loans, meaning that neither the principal nor the interest is recovered in such cases.

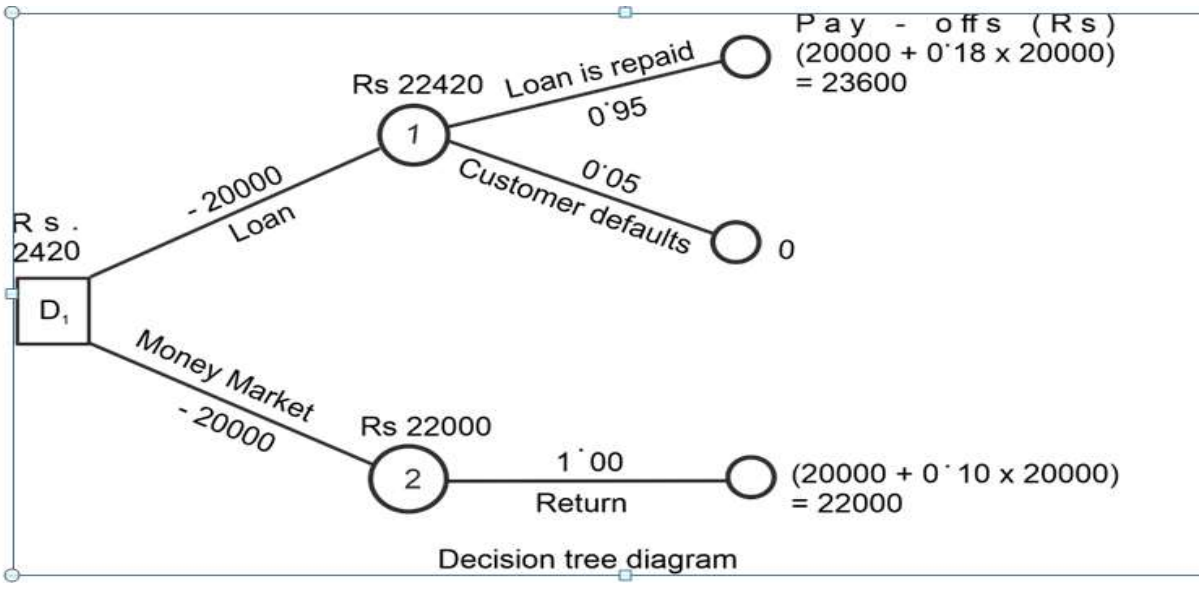
Required:

Prepare a decision tree and advise LAXMI BANK whether the loan should be sanctioned. **[7]**

(b) "Responsibility reporting should be appropriate and relevant with respect to its content, frequency, and the level of detail required." In this context, explain the characteristics of an effective Responsibility Reporting System. **[7]**

Answer:

(a)



Decision tree diagram

Here, D_1 is the decision point and 1 and 2 are the nodes.

The expected pay-offs at the nodes (1) and (2) are calculated as follows -

At node (1) → 23,600 x 0.95 + 0 x 0.05 = ₹ 22,420

At node (2) → 22,000 x 1.00 = ₹ 22,000

The expected pay-off at the decision point D_1, is found out as follows —

At D_1 → Maximum value of ₹ (22,000 – 20,000) = Rs 2,000

and ₹ (22,420 – 20,000) = ₹ 2,420 i.e., ₹ 2,420.

Advice :

Since the expected return of the Bank is ₹2,420, the bank should grant loan of ₹20,000.

(b)

The Characteristics of Responsibility Reporting are appended below :

(i) Reports should fit the organization chart, that is, the report should be addressed to the individual responsible for the items covered by it, who, in turn, will be able to control those costs under his jurisdiction. Managers must be educated to use the results of the reporting system.

(ii) Report should be prompt and timely. Prompt issuance of a report requires that cost records be organized so that information is available when it is needed.

(iii) Reports should be issued with regularity. Promptness and regularity are closely tied up with the mechanical aids used to assemble and issue reports.

(iv) Reports should be easy to understand. Often they contain accounting terminology that managers with little or no accounting training find difficult to understand, and vital information may be incorrectly communicated. Therefore, accounting terms should be explained or modified to fit the user.

(v) Reports should convey sufficient but not excessive details. The amount and nature of the details depend largely on the management level receiving the report.

(vi) Reports should give comparative figures, i.e., a comparison of actual with budgeted figures or of predetermined standards with actual results and the isolation of variances.

(vii) Reports should be analytical. Analysis of underlying papers, such as time tickets, scraps tickets, work orders, and materials requisitions, provide reasons for poor performance which might have been due to power failure, machine breakdown, an inefficient operator, poor quality of materials, or many other similar factors.

(viii) Reports for operating management should, if possible, be stated in physical units as well as in terms of money since monetary information may give a foreman not trained in the language of the accountant a certain amount of difficulty.

(ix) Reports may tend to highlight departmental efficiencies and inefficiencies, results achieved future goals or targets.