

MANAGEMENT ACCOUNTING-DECISION MAKING – STAGE-5

Q.2

Marks

- (a) (i) Capital-intensive:
 Break-even in units = Fixed expenses ÷ Unit contribution margin
 = (Rs.2,440,000 + Rs.500,000) ÷ (Rs.30 - Rs.14 - Rs.2)
 = Rs.2,940,000 ÷ Rs.14 per unit
 = 210,000 units
- (ii) Labour-intensive:
 Break-even in units = Fixed expenses ÷ Unit contribution margin
 = (Rs.1,320,000 + Rs.500,000) ÷ (Rs.30 - Rs.17.60 - Rs.2)
 = Rs.1,820,000 ÷ Rs.10.40 per unit
 = 175,000 units
- (b) Profit = Sales - Variable expenses - Fixed expenses
 Capital-intensive:
 Profit = Rs.30Q - Rs.16Q - Rs.2,940,000 = Rs.14Q - Rs.2,940,000
 Labour-intensive:
 Profit = Rs.30Q - Rs.19.60Q - Rs.1,820,000 = Rs.10.40Q - Rs.1,820,000
 The profits are equal when:
 Rs.14Q - Rs.2,940,000 = Rs.10.40Q - Rs.1,820,000
 Rs.3.60Q = Rs.1,120,000
 Q = Rs.1,120,000 ÷ Rs.3.60
 Q = 311,111
- (c) (i) Capital-intensive:
- | | Rs. | |
|-------------------------------------|-----------|---|
| Sales (250,000 × Rs.30) | 7,500,000 | |
| Variable expenses (250,000 × Rs.16) | 4,000,000 | |
| Contribution margin | 3,500,000 | 1 |
| Fixed expenses | 2,940,000 | |
| Net operating income | 560,000 | 1 |
- Degree of operating leverage = Contribution margin ÷ Net operating income
 = Rs.3,500,000 ÷ Rs.560,000 = 6.25
- (ii) Labour-intensive:
- | | Rs. | |
|--|-----------|---|
| Sales (250,000 × Rs.30) | 7,500,000 | |
| Variable expenses (250,000 × Rs.19.60) | 4,900,000 | |
| Contribution margin | 2,600,000 | 1 |
| Fixed expenses | 1,820,000 | |
| Net operating income | 780,000 | 1 |
- Degree of operating leverage = Contribution margin ÷ Net operating income
 = Rs.2,600,000 ÷ Rs.780,000 = 3.33
- (d) The decision hinges upon the expected sales of the new product. If management is confident that sales will be in **excess of 311,111 units**, then the **capital-intensive** method should be used.
 If sales are likely to fall **below this number**, then the **labour intensive** method should be used.
 Management should also be aware that net operating income will be more **volatile with the capital-intensive method since it has higher operating leverage.**

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Marks

Q.3 (a)	(i) Relevant cost per unit:		Rs.	
		Direct materials	23.40	
		Direct labour	22.30	
		Variable manufacturing overhead	1.40	
		Fixed manufacturing overhead	2.70	1
		Relevant manufacturing cost	49.80	1
	(ii) Net benefit loss:			
		Manufacturing cost	1,992,000	1
		Additional contribution margin	352,000	
		Cost of purchasing the part	(2,368,000)	1
		Net loss	(24,000)	2
	(iii) Maximum acceptable purchase price:			
		Manufacturing cost	1,992,000	
		Additional contribution margin	352,000	2
		Total amount, the company would be willing to pay	2,344,000	
		Number of units	40,000	2
		Maximum purchase price per unit	58.60	
(b)	(i) Target operating income = Target return on investment x Invested capital			
		Target operating income (25% x Rs.9,600,000)	2,400,000	1
		Total fixed costs	3,520,000	
		Target contribution margin	5,920,000	1
		Target contribution margin per room, (Rs.5,920,000 ÷ 16,000)	370	
		Add variable costs per room	30	
		Price to be charged per room	400	1
	(ii) Total operating income		Rs.	
		Total room revenues (Rs.400 x 16,000 rooms)	6,400,000	1
		Total costs		
		Variable costs (Rs.30 x 16,000)	480,000	1
		Fixed costs	3,520,000	
		Total costs	4,000,000	1
		Operating income	2,400,000	1
	(iii) Markup percentage (%)			
		The full cost of a room = variable cost per room + fixed cost per room		
		The full cost of a room = Rs.30 + (Rs.3,520,000 ÷ 16,000) = Rs.30 + Rs.220 = Rs.250		1
		Markup per room = Rental price per room - full cost of a room		
		= Rs.400 - Rs.250 = Rs.150		1
		Markup percentage = Rs.150 ÷ Rs.250 = 60%		1
	(iv) If price is reduced by 10%, the number of room nights would increase by 10%.		Rs.	
		The new price per room would be 90% x Rs.400	360	1
		The number of rooms Jamshed expects to rent is 110% of 16,000	17,600	1
		The contribution margin per room would be Rs.360 - Rs.30	330	1
		Contribution margin (Rs.330 x 17,600)	5,808,000	1

Because the contribution margin of Rs.5,808,000 at the reduced price of Rs.360 is less than the contribution margin of Rs.5,920,000 at a price of Rs.400, Jamshed should not reduce the price of the rooms.

Note that the fixed costs of Rs.3,520,000 will be the same under the Rs.400 and the Rs.360 price alternatives and are, hence, irrelevant to the analysis.

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Q.4 (a) Graphical methods are the simplest to use and should be employed wherever possible. The following are the major features of the approach in linear programming:

- (i) It can only be used where there are 2 unknowns.
- (ii) Graphical method can deal with any number of limitations but as each limitation is a line on the graph a large number of lines may make the graph difficult to read.
- (iii) Both **maximizing and minimizing problems** can be dealt with graphically and the method can deal with constraints of the 'greater than or equal to' (\geq) type and the 'less than or equal to' (\leq) type.
- (iv) The axes of the graph represents the unknowns and each constraint is drawn as a straight line on the graph. The area on the graph which does not **contravene** any of the constraints is known as the feasible region.
- (v) The solution point is always at a vertex of the constraints on the edge of the feasible region. If a line is drawn representing the objective function the solution point for maximizing problems is the corner of the feasible region furthest to the right which can be touched by the objective function line; for minimizing problems it is the corresponding point furthest to the left of the feasible region. When the solution point is found the values of the decision variable can be read directly from the axes of the graph.

Stating 4 features @ 1 mark 4

(b)

Cost of the project:	Rs.	
Cost of the Project	150,000	
Add: Transportation charges	5,000	
Installation charges	25,000	
	180,000	
Add: Spare parts inventory to be maintained	10,000	
Total cost of the project	190,000	1

Earning Before Depreciation and Tax:	Rs.	
Annual Revenue from the project	170,000	
Less: Annual Expenses:		
Materials	50,000	1
Labour	15,000	1
Maintenance Expenses	5,000	1
	70,000	
Earnings before depreciation and taxes	100,000	1

Net cash flows						Rs.	
Year	Earnings before Depreciation & Taxes	Depreciation	Earnings before taxes	Taxes	Earnings after Taxes	Net Cash flows (earnings after taxes plus depreciation)	
1	100,000	72,000	28,000	11,200	16,800	88,800	1
2	100,000	43,200	56,800	22,720	34,080	77,280	1
3	100,000	32,400	67,600	27,040	40,560	72,960	1
4	100,000	21,600	78,400	31,360	47,040	68,640	1
5	100,000	800	99,200	39,680	59,520	60,320	1

	Rs.	
Salvage value at the end of the 5th year		
Salvage value of the project	10,000	
Salvage value of the spare parts	6,000	
Total	16,000	1

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Marks

Statement Showing Evaluation of the Project at 12% rate of Interest

Year	Net Cash Flows	Discount Factor at 12%	Present Value at 12% (2 x 3)	
0	(190,000)	1.000	(190,000)	
1	88,800	0.893	79,298	1
2	77,280	0.797	61,592	1
3	72,960	0.712	51,948	1
4	68,640	0.636	43,655	1
5	76,320*	0.567	43,273	1
Net Present Value			89,766	

* (Earnings Rs.60,320 + Salvage value Rs.16,000)

The project is acceptable because net present value is positive.

1

Q.5 (a)

Vie Enterprises
Probable Sales of New Toy

Consumer Demand	Estimated Sales	Probability	Year-1	Year-2	Year-3	
(a) Above average	Year -1	1,200,000	0.30	360,000		
	2	2,500,000	0.30		750,000	
	3	600,000	0.30			180,000
(b) Average	Year -1	700,000	0.60	420,000		
	2	1,700,000	0.60		1,020,000	
	3	400,000	0.60			240,000
(c) Below average	Year -1	200,000	0.10	20,000		
	2	900,000	0.10		90,000	
	3	150,000	0.10			15,000
Total probable sales			800,000	1,860,000	435,000	
			2	+2	+2	= 6

(b)

Vie Enterprises
Probable Net Income for New Toy

	Year-1	Year-2	Year-3			
Probable sales	900,000	1,800,000	410,000			
Contribution margin rate	0.70	0.70	0.70			
Contribution to fixed expenses and profits	630,000	1,260,000	287,000	3		
Less: Advertising	(100,000)	(150,000)	(50,000)			
Depreciation	(375,000)	(250,000)	(125,000)			
Other fixed expenses	(50,000)	(50,000)	(50,000)			
Taxable income	105,000	810,000	62,000	3		
Income tax (35%)	36,750	283,500	21,700			
Probable net income	68,250	526,500	40,300			
			2	+2	+2	= 6

(c)

Vie Enterprises
Net Cash flows for New Toy

	Year-0	Year-1	Year-2	Year-3		
Cost of machine	(860,000)					
Probable net income		68,250	526,500	40,300		
Depreciation		375,000	250,000	125,000	3	
Proceeds from sale of machine				110,000	1	
Net cash flow	(860,000)	443,250	776,500	275,300	1	
			1.000	0.909	0.826	0.751
NPV = 391,053	(860,000)	402,914	641,389	206,750	1	

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- Q.6 (a)**
- Activity-based costing can also be used to identify activities that would benefit from process improvements. Indeed, this is the most widely cited benefit of activity-based costing by managers. When used in this way, activity-based costing is often called activity-based management. 1
 - Basically, activity-based management involves focusing on activities to eliminate waste, decrease processing time, and reduce defects. 1
 - Activity-based management is used in organizations as diverse as manufacturing companies, hospitals, and organization involve in storing, collecting and moving information, there is obviously a great deal of room for eliminating waste. 1

(b)

	Cost Control	Cost Reduction
(i)	This process undertakes the competitive analysis of actual results with established norms .	This process finds out the substitute by finding new ways or methods.
(ii)	Under this process, the variances are appraised and reported and necessary course of action will be taken to revise norms, standards etc.	Under this process necessary steps are taken for further modification in the method.
(iii)	It starts from established cost standards and attempts to keep the costs of operation of a process in line with those standards.	It challenges the standards forth-with and attempts to reduce cost on a continuous basis.
(iv)	The main stress is on the present and past behaviour of costs.	The emphasis is partly on the present costs and largely on future costs .
(v)	It has limited applicability to those items of costs for which standards have already been set . The items for which standards are set mainly relate to productive operations.	It is universally applicable. It should be applied to every area of the business . It does not depend on standards, though target amounts may be set.
(vi)	It attempts to achieve the best possible results at the least cost under given condition .	Under this no condition is considered to be permanent where a change will secure a lowest cost figure.
(vii)	Cost control is a preventive function . Costs are optimized before they are incurred.	Cost reduction is a corrective function . It operates even when efficient cost control system exists. There is room for reduction in the achieved costs.
(viii)	Cost control sometimes lacks dynamic approach .	It is a continuous process of analysis by various methods of all the factors affecting costs, efforts and functions in an organization. The main aim is to have continuous economy in costs.

Mentioning 5 differences @ 1 mark 5

THE END**DISCLAIMER**

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