

# FINAL EXAMINATION

June 2017

**P-15(SCMD)**  
**Syllabus-2016**

## Strategic Cost Management – Decision Making

Time Allowed: 3 Hours

Full Marks: 100

*The figures in the margin on the right side indicate full marks.*

*Answer Question No. 1 in Section A, which is compulsory, carrying 20 marks.*

*Further, answer any 5(five) Questions from Section B, each carrying 16 marks.*

### Section-A

(20 marks)

1. Choose the most appropriate answer to the following questions giving justification. Each question carries 2 (two) marks. 2×10=20

- (i) Stock Control data for Material P are:

Annual usage: 3600 units; Cost per unit: ₹ 100/-; Cost of placing an order: ₹ 40;

Stockholding Cost: 20% of the overall stock volume; Lead time: One month

The EOQ based on the above data is:

- (a) 210 units
- (b) 175 units
- (c) 90 units
- (d) 120 units

- (ii) Which of the following would take place if a company is able to reduce its variable cost?

*Contribution Margin*

*Break-Even Point*

- |              |          |
|--------------|----------|
| (a) Increase | Increase |
| (b) Decrease | Decrease |
| (c) Increase | Decrease |
| (d) Decrease | Increase |

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(iii) The following details relate to Product P-1 of a manufacturing company:

Level of activity (units)	<u>1000</u>	<u>2000</u>
Cost per unit (₹):		
Direct materials	4.00	4.00
Direct labour	3.00	3.00
Production Overheads	3.50	2.50
Selling Overheads	1.00	0.50
	<u>11.50</u>	<u>10.00</u>

The total fixed cost and variable cost per unit are:

	Total Fixed Cost (₹)	Variable Cost per unit (₹)
(a)	2,000	7.00
(b)	2,000	8.50
(c)	3,000	7.00
(d)	3,000	8.50

(iv) A company makes a single product which it sells at ₹ 10 per unit. Fixed costs are ₹ 48,000 per month and the product has a contribution to sales ratio of 40%. In a period when actual sales were ₹ 1,40,000, the company's margin of safety in units was:

- (a) 2000
- (b) 3000
- (c) 3500
- (d) 4000

(v) The following tasks are associated with ABC system:

- I. Allocation of costs to products
- II. Identification of cost pools
- III. Identification of cost drivers
- IV. Calculation of pool rates

The proper order of the preceding tasks is:

- (a) III, II, IV, I
  - (b) I, II, III, IV
  - (c) III, IV, II, I
  - (d) IV, III, II, I
- (vi) A company has the capacity of production of 80000 units and presently it sells 20000 units at ₹ 100 each. The demand is sensitive to selling price and it has been observed that every reduction of ₹ 10 in selling price the demand is doubled. What should be the target cost at full capacity if profit margin on sales is taken at 25%?
- (a) ₹ 58 lakhs
  - (b) ₹ 52 lakhs
  - (c) ₹ 48 lakhs
  - (d) ₹ 50 lakhs

(vii) The information relating to the direct material cost of a company is as follows:

Standard price per unit	₹ 7.20
Actual quantity purchased in units	1600
Standard quantity allowed for actual production in units	1450
Material price variance on purchase (Favourable)	₹ 480

What is the actual purchase price per unit?

- (a) ₹ 7.50
- (b) ₹ 6.40
- (c) ₹ 6.50
- (d) ₹ 6.90

(viii) Backflush costing is most likely to be used when:

- (a) Management desires sequential tracking of costs
- (b) A Just-in-Time inventory philosophy has been adopted
- (c) The company carries significant amount of inventory
- (d) Actual production costs are debited to work-in-progress

(ix) The preparation and use of standard cost, their comparison with actual costs and the measurement and analysis of variances to originating causes is defined as:

- (a) Marginal Costing
- (b) Standard Costing
- (c) Throughput Costing
- (d) Kaizen Costing

- (x) The following are cost data for two alternative ways of processing the clerical work for legal cases brought before the district court:

	Semi-automatic	Fully automatic
<i>Monthly fixed costs (₹):</i>		
Occupancy	15,000	15,000
Maintenance contract	5,000	10,000
Equipment lease	25,000	1,00,000
<i>Unit variable cost (per report) (₹)</i>		
Supplies	80	20
Labour	60	20

The cost indifference point will be:

- (a) 800 cases
- (b) 850 cases
- (c) 750 cases
- (d) 700 cases

### Section-B

Answer *any five* questions.

Each Question carries **16 Marks**.

**16×5=80**

2. (a) What is Value Chain? How does it help modern cost management? 2+4=6
- (b) (i) What are the problems of Traditional Costing arising out of volume-based cost allocation to products?
- (ii) How can Activity-Based Costing help refining such costing system? 1+3=4
- (c) (i) What are relevant costs and relevant revenues?
- (ii) In making repetitive decisions using relevant costs and benefits, should a decision maker be aware of several pitfalls? If so, mention a few and briefly explain them. 2+4=6

3. (a) Accelerate Co. Ltd., manufactures and sells four types of products under the brand names of A, B, C and D. The sales mix in value comprises  $33 \frac{1}{3}\%$ ,  $41 \frac{2}{3}\%$ ,  $16 \frac{2}{3}\%$  and  $8 \frac{1}{3}\%$  of products A, B, C and D, respectively. The total budgeted sales (100%) are ₹ 60,000 p.m. Operating Costs are— Variable costs: Product A 60% of selling price, Product B 68% of selling price, Product C 80% of selling price, Product D 40% of selling price; Fixed costs: ₹ 14,700 p.m.

*Required:*

Calculate the break-even-point for the products on overall basis.

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- (b) A2Z p.l.c supports the concept of zero technology or life cycle costing for new investment decisions covering its engineering activities. The financial side of this philosophy is now well established and its principles extended to all other areas of decision making. The company is to replace a number of its machines and the Production Manager is torn between the Exe Machine, a more expensive machine with a life of 12 years, and the Wye machine with an estimated life of 6 years. If the Wye machine is chosen, it is likely that it would be replaced at the end of 6 years by another Wye machine. The pattern of maintenance and running costs differs between the two types of machine and relevant data are shown below:

	Exe	Wye
Purchase price	₹ 19,000	₹ 13,000
Trade-in value/breakup/scrap	₹ 3,000	₹ 3,000
Annual repair costs	₹ 2,000	₹ 2,600
Overhaul costs	(at year 8) ₹ 4,000	(at year 4) ₹ 2,000
Estimated financing costs	10% p.a.	10% p.a.
averaged over machine life		

*Required:* Recommend with supporting figures, which machine to purchase, stating any assumptions made?

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4. (a) SRM Ltd. has developed a new product 'Kent' which is about to be launched into the market and anticipates to sell 80,000 of these units at a sale price of ₹ 300 over the product's life cycle of four years. Data pertaining to product 'Kent' are as follows:

Costs of Design and Development of Moulding Dies and Other tools	₹ 10,25,000
Manufacturing costs	₹ 125 per unit
Selling costs	₹ 12,500 per year + ₹ 100 per unit
Administration costs	₹ 50,000 per year
Warranty expenses	5 replacement parts per 25 units at ₹ 10 per part, 1 visit per 500 units (cost ₹ 500 per visit)

Required:

- Compute the product Kent's Life Cycle Cost.
  - Suppose SRM Ltd. can increase sales volume by 25% through 15% decrease in selling price, should SRM Ltd. choose the lower price?
- (b) BCG Manufacturers sell their product at ₹ 1,000 per unit. Their competitors are likely to reduce the price by 15%. BCG Manufacturers want to respond aggressively by cutting price by 20% and expect that the present volume of 150000 units per annum will increase to 200000 units. BCGM want to earn a 10% target profit on sales. Based on a detailed value engineering, the comparative position is given below:

Particulars	Existing (₹)	Target (₹)
Direct Material Cost per unit	400	385
Direct Labour Cost per unit	55	50
Direct machinery costs per unit	70	60
Direct Manufacturing expenses per unit	525	425
Manufacturing Overheads		
No. of orders (₹ 80 per order)	22,500	21,250
Testing hours (₹ 2 per hour)	45,00,000	30,00,000
Units reworked (₹ 100 per unit)	12,000	13,000

Manufacturing overheads are allocated using relevant cost drivers. Other operating costs per unit for the expected volume are estimated as follows:

Research and Design	₹ 50
Marketing and Customer Service	₹ 130
	<u>₹ 180</u>

Required:

- (i) Calculate target costs per unit and target costs for the proposed volume showing break up of different elements.
- (ii) Prepare target product profitability statement. 4+4=8

5. (a) A manufacturing company currently operating at 80% capacity has received an export order from Middle East, which will utilise 40% of the capacity of the factory. The order has to be either taken in full and executed at 10% below the current domestic prices or rejected totally.

The current sales and cost data are given 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) Accept the export order and allow the domestic market to starve to the extent of excess of demand.
- (III) 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:

Evaluate each of the above alternatives and suggest the best one.

(b) The following particulars are extracted from the records of Ajanta Works Limited:

Particulars	Product A	Product B
Selling price per unit	₹ 1,000.00	₹ 1,200.00
Consumption of Material	Kg. 20.00	Kg. 30.00
Material cost	₹ 100.00	₹ 150.00
Direct wages	₹ 150.00	₹ 100.00
Direct expenses	₹ 50.00	₹ 60.00
Machine Hours used	3	2
Overhead Expenses:		
Fixed	₹ 50.00	₹ 100.00
Variable	₹ 150.00	₹ 200.00

Note: Direct wages per hour is ₹ 50.00

Required:

(i) Comment on the profitability of each product (both use the same raw material) when:

- (I) Total sales potential in units is limited
- (II) Total sales potential in value is limited
- (III) Raw Material is in short supply, and
- (IV) Production Capacity (in terms of Machine Hours) is the limiting factor.

(ii) Assuming raw material as the key factor, availability of which is 10000 Kg., and maximum sales potential of each product being 3500 units, find out the product mix which will yield the maximum profit. 4+6=10

6. (a) Nikee Ltd. manufactures and sells one variety of sports-shirt in India. Noted football clubs and supporters of these clubs are the main customers. Nikee's products show some rectifiable defects. These problems can generally be detected and repaired during internal inspection at a cost of ₹ 15 per unit.

During 2016, 50000 shirts were produced and sold. After inspection defect was detected in respect of 5% of output. Inspection cost is ₹ 25 per shirt. After sales, customers reported defects in respect of 6% of output. These shirts were received back from customers at a transportation cost of ₹ 8 per unit. Because of negative publicity due to defects, there would be loss of sales in 2017 to the extent of 5% of external failures.

*Required:*

i. Analyse costs of quality showing separately (with workings) the:

- (I) Inspection or appraisal cost
- (II) Internal failure cost
- (III) External failure cost
- (IV) Opportunity cost due to external failure, and
- (V) Total costs of quality

ii. If the selling price per shirt is ₹ 250 and variable cost is 60% of sales, fixed cost ₹ 5,50,000 p.a., prepare a statement showing profitability of the product during 2016.

6+2=8

(b) You are given the following estimates for next year's budgeted sales and costs of single product produced by Bee Ltd.:

Selling Price	₹ 12	
Sales demand:	Units	Probability
	3200	0.50
	4000	0.30
	5000	0.20
	₹	Probability
Variable cost per unit	5.00	0.3
	6.00	0.5
	7.00	0.2

Fixed cost for the period: ₹ 20,000

*Required:*

- i. Expected value of sales for the period.
- ii. Expected variable cost and contribution for the period.
- iii. Expected profit or loss for the budget period.

2+4+2=8

7. (a) XYZ Auto-manufacturing company has to prepare a design of its latest model of motorcycle. The various activities to be performed to prepare a design are as follows:

Activity	Description of activity	Preceding activity
A	Prepare drawing	–
B	Carry out cost analysis	A
C	Carry out financial analysis	A
D	Manufacture tools	C
E	Prepare bill of material	B, C
F	Receive material	D, E
G	Order sub-accessories	E
H	Receive sub-accessories	G
I	Manufacture components	F
J	Final assembly	I, H
K	Testing and shipment	J

Prepare an appropriate network diagram.

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- (b) In a processing industry two products A and B are made involving two operations. The production of B also results in a by-product C. The product A can be sold at a profit of ₹ 3 per unit and B at a profit of ₹ 8 per unit. The by-product C has a profit of ₹ 2 per unit. Forecast shows that upto 5 units of C can be sold. The company gets 3 units of C for each unit of B produced. The manufacturing times are 3 hours per unit for A on each of the operation one and

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two and 4 hours and 5 hours per unit for B on operation one and two, respectively. Because the product C results from producing B, no time is used in producing C. The available times are 18 hours and 21 hours of operation one and two respectively. The company desires to know how much of A and B should be produced keeping C in mind to make the highest profit.

*Required:*

Formulate LP model for this problem.

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**8. Write short notes on *any four* of the following:**

4×4=16

- (a) Variants of Backflush Accounting
  - (b) Transfer Pricing
  - (c) Principles of Total Quality Management (TQM)
  - (d) Learning Curve Theory
  - (e) Simulation Technique
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