

FINAL EXAMINATION

December 2023

STRATEGIC COST MANAGEMENT- DECISION MAKING

P-15(SCMD)  
Syllabus 2016

Time Allowed: 3 Hours

Full Marks: 100

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

Working Notes should form part of the respective answer.  
Wherever necessary, candidates may make appropriate assumptions  
and clearly state them in answer.

Section-A is compulsory and contains Question No. 1 for 20 marks. Section-B contains  
Question Nos. 2 to 8, each carries 16 marks.

Section-A

Answer all the questions. Each question carries two marks.

1. Choose the most appropriate answer to the following questions giving justification/  
reasonable workings. (One mark is for the correct choice and one mark is for the  
justification / workings.)

(i) The profit volume ratio of Divon Ltd. is 30%, while the margin of safety is 40%. If  
fixed cost of the company is ₹ 1,80,000, what will be its profit (net)? 2×10=20

(A) ₹ 1,20,000

(B) ₹ 1,50,000

(C) ₹ 1,60,000

(D) None of the above

(ii) A factory of ROGO Ltd. has a key resource (bottleneck) of a facility M which is  
available for 48000 minutes per week. The time taken per unit of product A in facility  
M is 6 minutes. Last week's actual output was 5000 units of product A and actual  
factory cost (excluding material cost) was ₹ 1,20,000. What is throughput cost per week?

(A) ₹ 1,20,000

(B) ₹ 1,00,000

(C) ₹ 75,000

(D) Insufficient information

(iii) SHIND Ltd., a manufacturing company using Standard Costing system, has the following information pertaining to a normal production of 15000 units of a product for the month of April.

Standard factory overheads rates are based on a normal volume of one standard direct labour hour per unit for the month of April.

Standard factory overheads rate per Direct Labour hour are :

Variable	₹ 15
Fixed	₹ 8
	<hr/>
	₹ 23

Units actually produced during the month 14000 units

Actual factory overhead cost incurred (including ₹ 87,000 Fixed) : ₹ 2,90,000

Actual direct labour hours 14000 hours

What will be the Variable Overhead Expenditure variance?

(A) ₹ 9,000 (Adv.)

(B) ₹ 8,000 (Fav.)

(C) ₹ 8,000 (Adv.)

(D) ₹ 7,000 (Fav.)

(iv) MOB Ltd., has developed a new product and just completed the manufacture of first four units of the product. If the first unit took 4 hours to manufacture and the first 4 units together took 11.56 hours to produce, the Learning Curve (LC) rate would be:

(A) 69.50 %

(B) 75.00 %

(C) 80.10 %

(D) 85.00 %

(v) The expected time for an activity of Project A is 10 days. If the optimistic and pessimistic times are 8 days and 12 days respectively, the most likely time estimate will be:

(A) 2 days

(B) 5 days

(C) 10 days

(D) None of the above

- (vi) During which phase of the Product Life Cycle, sales rise at an increasing rate?
- (A) Introduction  
(B) Growth  
(C) Maturity  
(D) Decline

- (vii) An increase in the selling price per unit will cause
- (A) a decrease in the number of units required to breakeven.  
(B) an increase in the contribution margin ratio.  
(C) an increase in the margin of safety.  
(D) All of the above

- (viii) The following tasks are associated with Activity Based Costing System:
- (1) Allocation of Costs of Products
  - (2) Identification of Cost Pools
  - (3) Identification of Cost drivers
  - (4) Calculation of Pool rates

The proper order of the preceding tasks is

- (A) (3), (2), (4), (1)  
(B) (1), (3), (4), (2)  
(C) (1), (2), (3), (4)  
(D) (4), (3), (1), (2)
- (ix) When fewer than  $m+n-1$  shipment exist in a feasible solution
- (A) the problem is capacitated.  
(B) an occupied cell must be created artificially.  
(C) a dummy source must be created.  
(D) the problem is unbalanced.

- (x) JACKSON Ltd., sells its product for ₹ 8,000 per unit. Variable costs per unit are – manufacturing ₹ 4,000 and selling and administrative ₹ 80. Fixed costs are ₹ 20,000 manufacturing overheads and ₹ 30,000 selling and administrative overheads. There was no beginning inventory. Production was 25 units during the month and sales was 20 units during the month. What will be the Income under Absorption Costing for the month?

- (A) ₹ 32,400  
(B) ₹ 30,800  
(C) ₹ 30,000  
(D) None of the above

**Section-B**

(Answer any five questions)

16×5 = 80

2. (a) Titonic Ltd., makes digital watches. The company is preparing a product life cycle budget for a new watch. Development on the new watch is to start shortly. Estimates for new watch are as under:

Life cycle units manufactured and sold	2,40,000
Selling price per watch	₹ 500
Life Cycle Cost:	
R&D and design cost	₹ 80 lakh
Manufacturing:	
Variable cost per watch	₹ 120
Variable cost per batch	₹ 4,000
Watches per batch	300
Fixed Costs	₹ 112 lakh
Marketing:	
Variable cost per batch (watch per batch=96)	₹ 24
Fixed Costs	₹ 8 lakh
Distribution:	
Variable Cost per watch	₹ 240
Fixed costs	₹ 45 lakh
Warranty Expenses	5 replacement parts per 25 units at ₹ 30 per part

**Required:**

- Calculate the budgeted life cycle operating income for the new Digital Watches.
- If the Titonic Ltd. increase sales by 15% through 10% reduction in selling price, advise the company as to whether it should go for reduction in selling price. 10

- (b) SOXT Ltd., is engaged in manufacturing activities. It has received a request from one of its important customers to supply a product which will require conversion of Material M, which is a non-moving item.

The following details are available :

Book Value of Material M	₹ 60
Realizable Value of Material M	₹ 80
Replacement Cost of Material M	₹ 100

It is estimated that conversion of one unit of M into one unit of finished product will require one unit of labour hour. At present labour is paid @ ₹ 20 per hour.

Other costs are as follows :

Out of pocket expenses	₹ 30 per unit
Allocated overheads	₹ 10 per unit

The labour will be redeployed from other activities. It is estimated that the temporary redeployment will not result in loss of contribution. The employees to be redeployed are permanent employees of the company. (Assume that there is no retrenchment policy existing).

Required:

Estimate the minimum price to be charged from the customer so that the company is not worse-off by executing the order.

3. UNIVER, a company manufacturing a highly successful line of cosmetics intends to diversify the product line to achieve fuller utilisation of its plant capacity. As a result of considerable research made, the company has been able to develop a new product called "UVO". UVO is packed in tubes of 50 gram capacity and is sold to the wholesaler in cartons of 24 tubes at ₹ 240 per carton. Since the company uses its spare capacity for the manufacture of UVO, no additional fixed expenses will be incurred. However the cost accountant has allocated a share of ₹ 4,50,000 per month as fixed expenses to be absorbed by UVO as a fair share of the company's present fixed costs to the new product for costing purposes. The company estimates the production and sale of UVO at 3,00,000 tubes per month and on this basis the following cost estimates have been developed:

	₹ per carton
Direct materials	108
Direct wages	72
Overheads	54
Total costs	234

After a detailed market survey, the company is confident that the production and sales of UVO can be increased to 3,50,000 tubes per month and ultimately to 4,50,000 tubes per month.

The company at present has a capacity for the manufacture of 3,00,000 empty tubes and the cost of the empty tubes if purchased from outside will result in a saving of 20% in material and 10% in direct wages and variable overhead costs of UVO. The price at which the outside firm is willing to supply the empty tubes is ₹ 1.35 per empty tube. If the company desires to manufacture empty tubes in excess of 3,00,000 tubes, a new machine involving an additional fixed overheads of ₹ 30,000 per month will have to be installed.

Required:

- (i) State by showing your workings whether the company should make or buy the empty tubes at each of the three volumes of production of UVO namely 3,00,000, 3,50,000 and 4,50,000 tubes.
- (ii) At what volume of sales will it be economical for the company to install the additional equipment for the manufacture of empty tubes?
- (iii) Evaluate the profitability on the sale of UVO at each of the aforesaid three levels of output based on your decision and showing the cost of empty tubes as a separate element of cost.

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4. (a) JINDAN Ltd., using the Standard Costing System, produces an article by blending two basic raw materials. The following standards have been set up for raw materials:

Material	Standard Mix	Standard Price per kg.
A	40%	₹ 5.00
B	60%	₹ 4.00

The standard loss in processing is 10%. During March, 2023, the company produced 2,250 kgs. of finished output.

The position of stock and purchases for the month of March, 2023 is as under:

Material	Stock on 01.03.2023	Stock on 31.03.2023	Purchase during March, 2023
A	40 kgs.	20 kgs.	800 kgs. for ₹ 4,800
B	50 kgs.	15 kgs.	1800 kgs. for ₹ 7,560

Assume FIFO method for issue of material. The opening stock is to be valued at standard price.

Required:

Calculate the following variances:

- (i) Material Price variance,
- (ii) Material Usage variance,
- (iii) Material Yield variance,
- (iv) Material Mix variance,
- (v) Material Cost variance.

(b) Append the benefits derived from Inter-firm comparison. (any six)

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5. (a) MKT Ltd. has two divisions, A and B. Division A manufactures product X which it sells in outside market as well as to Division B which processes it to manufacture Z. The manager of Division B has expressed the opinion that the transfer price is too high and that it should be lowered down.

The two divisional managers are about to enter into discussion to resolve the conflict.

The following information is collected before the discussion.

Division A has been selling 40,000 units to outsiders and 10,000 units to Division B, all at ₹ 20 per unit. It is not anticipated that the demand will change. The variable cost is ₹ 12 per unit and the fixed costs are ₹ 2 lakh.

The manager of Division A anticipates that Division B will want a transfer price of ₹ 18. If he does not sell to Division B ₹ 35,000 of fixed costs and ₹ 1,50,000 of assets out of total assets of ₹ 8,00,000 can be avoided. The manager of Division A would have no control over the proceeds from the sale of the assets and is judged primarily on his rate of return.

(i) Should the manager of Division A transfer its products at ₹ 18 to Division B?

(ii) What is the lowest price that Division A should accept? Support your decision.

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- (b) BORD (I) Ltd., offers a range of cars from Economy, Sedans, SUVs and Used cars, have decided to adopt JIT Policy, in making of the new car BOS 20.

The following effects of JIT policy are identified:

- (i) To implement JIT, the company has to modify its production and material receipt facilities at a capital cost of ₹ 10,00,000. The new machine will require a cash operating cost of ₹ 10,800 per annum. The capital cost will be depreciated over 5 year.
- (ii) The raw material stockholding will be reduced from ₹ 40,00,000 to ₹ 10,00,000.
- (iii) The company can earn 15% on its long-term investments.
- (iv) The company can avoid rental expenditure on storage facilities amounting to ₹ 33,000 per annum. Property taxes and insurance amounting to ₹ 22,000 will be saved due to JIT programme.
- (v) Presently there are 7 workers in the store department at a salary of ₹ 5,000 each per month. After implementing JIT scheme, only 5 workers will be required in this department. Balance 2 workers' employment will be terminated.

- (vi) Due to receipt of smaller lots of raw materials, there will be some disruption of production. The costs of stock-outs are estimated at ₹ 77,000 per annum.
- (vii) Since the supplier is new having no reputation as yet in the market, an additional inspection cost of ₹ 10,000 p.a. has to be incurred.

(Ignore depreciation and taxation).

**Required:**

- (i) Determine the financial impact of the JIT Policy.
- (ii) Is it advisable for the BORD (I) Ltd. to implement JIT for new BOS 20 production system ?

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6. (a) An automobile company manufactures around 150 scooter. The daily production varies from 146 to 154 depending upon the availability of raw materials and other working conditions. The probability for the number of units produced daily is given as under:

Production per day	Probability
146	0.04
147	0.09
148	0.12
149	0.14
150	0.11
151	0.10
152	0.20
153	0.12
154	0.08

The finished scooters are transported in a specially arranged lorry accommodating 150 scooters.

Use the following random numbers i.e. 80, 81, 76, 75, 64, 43, 18, 26, 10, 12, 65, 68, 69, 61 and 57 and simulate the process to find out:

- (i) What will be the average number of scooters waiting in the factory?
- (ii) What will be the average number of empty space on the lorry?

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- (b) SIDH Ltd. a manufacturing company produces four products. There are four operators who are capable of producing any of these four products. The efficiency of the operators varies from operator to operator. The profit for each of the product are given below:

Operators	Products			
	A	B	C	D
1.	240	300	225	300
2.	360	450	250	300
3.	144	180	150	200
4.	240	300	225	180

**Required:**

- Find a suitable allocation of operators to the products so that total profit is maximum.
- Assess the maximum profit possible through optimal assignment.

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7. (a) BONTECH (I) Ltd., a company is launching a new product and has made estimates of the times for the various tasks associated with the launch as follows:

Task	Immediate predecessor	Times (days)		
		Most likely	Optimistic	Pessimistic
A	—	5	4	6
B	—	12	8	16
C	—	5	4	12
D	A, B	3	1	5
E	B	2	2	2
F	C	5	4	6
G	B, C	14	10	18
H	D, E, G	20	18	34

**You are required:**

- (i) to calculate the expected task durations using the PERT methodology.
- (ii) to draw a project diagram and calculate the overall duration and its standard deviation.
- (iii) to calculate the probability of finishing the project in 54 days using the properties of the Normal Distribution, based on the values from the table below.
- (iv) There is evidence that managers are poor at estimating extreme values (optimistic and pessimistic). It is suspected that, in this project, the times given for tasks A, B, C and F under-estimate the pessimistic times by 1 day and over-estimate the optimistic times by 1 day.

In the case of tasks G and H the under / over-estimation is put at 2 days.

You are required to calculate the new probability of completing the project in 54 days and to comment on the effect of the new probability.

Given: Table for Areas under normal curve from 0 to Z.

Z = 0 to Z	0.50	1.00	1.30	1.42	1.835	2.00
Table Value	0.0915	0.3413	0.4032	0.4222	0.4667	0.4772

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- (b) SCML, a Mutual Fund company, has ₹ 20 Lakhs available for investment in government bonds, blue chip stocks, speculative stocks and short-term deposits. The annual expected return and risk factor are given below:

Type of Investment	Annual Expected Return (%)	Risk Factor (0 to 100)
Government Bonds	14	12
Blue Chip Stocks	19	24
Speculative Stocks	23	48
Short-Term Deposits	12	6

Mutual Fund is required to keep at least ₹ 2 lakhs in short-term deposits and not to exceed average risk factor of 42. Speculative stocks must be at most 20 per cent of the total amount invested.

**Required:**

How should the mutual fund invest the funds so as to maximize its total expected annual return?

Formulate this as a Linear Programming problem. Do not solve it.

8. Write Short Notes on *any four* out of the following five questions:

4×4=16

- (a) Enumerate the situations where a product can be sold below the marginal cost.
  - (b) Applications of Learning Curve.
  - (c) "Kaizen Costing is an approach that explicitly incorporate continuous improvement during the Budget period" — Discuss the statement.
  - (d) State what are the difficulties in implementation of Benchmarking.
  - (e) Enumerate what are the advantages of Cost Control System.
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