

**Paper 9 – OPERATIONS MANAGEMENT  
&  
STRATEGIC MANAGEMENT**

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Full Marks: 100

Time allowed: 3 hours

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

This question paper has two sections.

Both the sections are to be answered subject to instructions given against each.

**Section – A**

1. (a) Choose the correct answer: [1x10=10]

- (i) The lead-time is the time :
  - (a) To place orders for materials
  - (b) Time of receiving materials
  - (c) Time between receipt of material and using materials,
  - (d) Time between placing the order and receiving the materials
  
- (ii) Variety reduction is generally known as :
  - (a) Less varieties
  - (b) Simplification
  - (c) Reduced varieties
  - (d) None of the above
  
- (iii) To activity of specifying when to start the job and when to end the job is known as :
  - (a) Planning
  - (b) Scheduling
  - (c) Timing
  - (d) Follow-up
  
- (iv) Routine and Scheduling becomes relatively complicated in
  - (a) Job production
  - (b) Batch production
  - (c) Flow production
  - (d) Mass production
  
- (v) The scope of production planning and control is :
  - (a) Limited to production of products only
  - (b) Limited to production of services only
  - (c) Limited to production of services and products only
  - (d) Unlimited, can be applied to any type of activity
  
- (vi) The first stage in production planning is :
  - (a) Process Planning
  - (b) Factory planning
  - (c) Operating planning
  - (d) Layout planning
  
- (vii) One of the product examples for Line Layout is :
  - (a) Repair Workshop
  - (b) Welding Shop
  - (c) Engineering College
  - (d) Cement

(viii) Cost reduction can be achieved through :

- (a) Work sampling
- (b) Value analysis
- (c) Quality assurance
- (d) Supply chain management

(ix) Which of the following stages of Product Life Cycle does attribute beginning of substantial increase in Sales and Profits?

- (a) Introduction
- (b) Growth
- (c) Maturity
- (d) Decline

(x) Reliability and per unit cost of which of the following spares are less?

- (a) Regular spares
- (b) Insurance spares
- (c) Capital spares
- (d) Rotable spares

(b) Match the products in column-I with production centers in column -II: [1x6=6]

I	II
(A) Furniture	(a) Assembly line
(B) Hydro-electricity	(b) Refinery
(C) Television set	(c) Carpentry
(D) Cement	(d) Turbo-Alternator
(E) Aviation Fuel	(e) Rotary Kiln
(F) Tools	(f) Machine shop

(c) State whether the following statements are True or False: [1x6=6]

- (i) A good materials handling system always consists of conveyors ( )
- (ii) Increase in productivity leads to retrenchment of work force ( )
- (iii) Project costs increase as the duration of the project increases ( )
- (iv) Break-even analysis a management tool ( )
- (v) There is a limit beyond which labour productivity cannot be improved ( )
- (vi) Breakdown maintenance doesn't require use of standby machines ( )

Answer any three questions from the following: [3x16=48]

2. (a) What is forecasting? What are its advantages? [8]

(b) M/s Kobo Bearings Ltd., is committed to supply 24,000 bearings per annum to M/s. Deluxe Fans on a steady daily basis. It is estimated that it costs 10 paisa as inventory holding cost per bearing per month and that the setup cost per run of bearing manufacture is ₹ 324.

- (i) What is the optimum run size for bearing manufacture?
- (ii) What should be the interval between the consecutive Optimum runs?
- (iii) Find out the minimum inventory holding cost. [8]

3. (a) What does Product Design do? Discuss – Process design and selection. [6]

(b) A department works on 8 hours shift, 288 days a year and has the usage data of a machine, as given below:

Product	Annual Demand (units)	Processing time (standard time in hours)
A	325	5.0
B	450	4.0
C	550	6.0

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Calculate:

- (a) Processing time needed in hours to produce product A, B and C,  
 (b) Annual production capacity of one machine in standard hours, and  
 (c) Number of machines required.

[10]

4. (a) Priyanshu enterprise has three factories at locations A, B and C which supply three warehouses located at D, E and F. Monthly factory capacities are 10, 80 and 15 units respectively. Monthly warehouse requirements are 75, 20 and 50 units respectively. Unit shipping costs (in ₹) are given in the following table :

	To	D	E	F
	A	5	1	7
From	B	6	4	6
	C	3	2	5

The penalty costs for satisfying demand at the warehouses D, E and F are ₹ 5, ₹ 3 and ₹ 2 per unit respectively. Determine the optimum distribution for Priyanshu, using any of the known algorithms.

[10]

- (b) A small retailer has studied the weekly receipts and payments over the past 200 weeks and has developed the following set of information:

[6]

Weekly Receipts (₹)	Probability	Weekly Payments (₹)	Probability
3,000	0.20	4,000	0.30
5,000	0.30	6,000	0.40
7,000	0.40	8,000	0.20
12,000	0.10	10,000	0.10

Using the following set of random numbers, simulate the weekly pattern of receipts and payments for the 12 weeks of the next quarter, assuming further that the beginning bank balance is ₹ 8,000. What is the estimated balance at the end of the 12 weekly period? What is the highest weekly balance during the quarter? What is the average weekly balance for the quarter?

5. (a) The following table gives data on normal time & cost and crash time & cost for a project.

Activity	Normal		Crash	
	Time (days)	Cost (₹)	Time (days)	Cost (₹)
1 - 2	6	600	4	1,000
1 - 3	4	600	2	2,000
2 - 4	5	500	3	1,500
2 - 5	3	450	1	650
3 - 4	6	900	4	2,000
4 - 6	8	800	4	3,000
5 - 6	4	400	2	1,000
6 - 7	3	450	2	800

The indirect cost per day is ₹100.

- Draw the network and identify the critical path.
- What are the normal project duration and associated cost?

[8]

- (b) A firm is using a machine whose purchase price is ₹15,000. The installation charges amount to ₹ 3,500 and the machine has a scrap value of only ₹1,500 because the firm has a monopoly of this type of work. The maintenance cost in various years is given in the following table:

[8]

Year	1	2	3	4	5	6	7	8	9
Maintenance Cost (₹)	260	760	1100	1600	2200	3000	4100	4900	6100

The firm wants to determine after how many years should the machine be replaced on economic considerations, assuming that the machine replacement can be done only at the year end.

**Section – B**

6. Choose the correct answer:

[6x1=6]

- (i) Benchmarking is :
- (a) The analytical tool to identifying high cost activities based on the 'Pareto Analysis'
  - (b) The search for industries best practices that lead to superior performance
  - (c) The simulation of cost reduction schemes that help to build commitment and improvement of actions
  - (d) The process of marketing and redesigning the way a typical company works
  - (e) The framework that earmarks a linkage with suppliers and customers
- (ii) Question mark in BCG Matrix is an investment, which :
- (a) Yields low current income but has bright growth prospects
  - (b) Yields high current income and has bright growth prospects
  - (c) Yields high current income and has bleak growth prospects
  - (d) Yields low current income and has bleak growth prospects
- (iii) Directional policy matrix is the same as :
- (a) the BCG model
  - (b) the 9 – cell GE matrix
  - (c) the life cycle portfolio analysis
  - (d) the PIMS matrix
  - (e) the 3x3 competitive positioning matrix
- (iv) For an entrepreneur :
- (a) Vision is before the mission
  - (b) Mission is before the vision
  - (c) Both are developed simultaneously
  - (d) Division or mission are un-important issue
  - (e) Profitability is most crucial
- (v) Indian Airlines decreasing the airfare on the Delhi – Mumbai sector following the introduction of the no frills airlines would be an example of
- (a) Cost leadership
  - (b) Price leadership
  - (c) Product differentiate
  - (d) Focus
  - (e) Market retention
- (vi) A product line is a group of product that
- (a) are closely related
  - (b) are marketed through the same channel
  - (c) perform a similar function for being sold to the same customers
  - (d) All of the above

Answer any one question from the following:

[1x12=12]

7. (a) What do you mean by strategy? Discuss its features.

[5]

(b) Discuss Contingency Planning & its seven steps?

[7]

8. (a) Discuss various stages in strategic planning. [6]
- (b) Define SBU. What are its merits & demerits? [6]
9. Write a short note on any of the following three questions: [3x4=12]
- (a) SWOT Analysis;
  - (b) BCG Matrix;
  - (c) Strategic Planning;
  - (d) Market Penetration Strategy.