

**Paper 9 – Operations Management
and
Strategic Management**

Paper 9 – Operations Management and Strategic Management

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 (Operation Management)

PART – I

1. (a) Choose the correct Answer: (1x10=10)

- (i) Number of product varieties that can be manufactured in Job production is:
 - (a) Limited to one or two,
 - (b) Large varieties of products,
 - (c) One only
 - (d) None of the above.
- (ii) Generally, in continuous production the production is carried out to:
 - (a) Customer's order,
 - (b) Government orders only,
 - (c) For stock and supply,
 - (d) Few rich customers.
- (iii) The starting point of Production cycle is:
 - (a) Product design,
 - (b) Production Planning,
 - (c) Routing,
 - (d) Market research.
- (iv) Effective capacity can NOT be determined by which of the following factors?
 - (a) Product design and product-mix
 - (b) Quantity and quality capabilities
 - (c) Facilities
 - (d) None of the above
- (v) Which one of the following standards is associated with the "Quality Assurance in Final Inspection "Test"?"
 - (a) ISO 9001
 - (b) ISO 9002
 - (c) ISO 9003
 - (d) ISO 9004
- (vi) To determine where the plant should be located for maximum operating economy and effectiveness, refers to which one of the following?
 - (a) Plant layout
 - (b) Facility location
 - (c) Capacity planning
 - (d) Capacity requirement

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- (vii) In which of the following stages the management should try to change its approach by changing its strategy from "buy my product" to "try my product"?
- (a) Introduction
 - (b) Growth
 - (c) Maturity
 - (d) Decline
- (viii) One of the important charts used in Programme control is
- (a) Gantt chart
 - (b) Material chart
 - (c) Distribution chart
 - (d) Maintenance chart
- (ix) For a marketing manager, the sales forecast is:
- (a) Estimate of the amount of unit sales or a specified future period,
 - (b) Arranging the sales men to different segments of the market
 - (c) To distribute the goods through transport to satisfy the market demand,
 - (d) To plan the sales methods
- (x) With reference to the characteristics of a good product design, which one of the following is referred to "the ease of manufacture with minimum cost"?
- (a) Reliability
 - (b) Productibility
 - (c) Specification
 - (d) Simplification

(b) Match Column "A" with column "B" (6×1=6)

A	B
a. Furniture	(i) spinning mill
b. brainstorming	(ii) smithy
c. cotton yarn	(iii) crashing
d. computer aided design	(iv) value analysis
e. network analysis	(v) carpentry
f. forgings	(vi) product design

(c) State whether the following statements "true" or "false" (6×1=6)

- (i) Customer service is a key objective of operations management
- (ii) A work stoppage generally reduces the cost of production
- (iii) Increased productivity leads to cost reduction.
- (iv) One of the limitations of Gantt Chart is that it does not clearly indicate the details regarding progress of activities.
- (v) Breakdown maintenance doesn't require use of standby machines.
- (vi) Load control is typically found wherever a particular bottleneck machine does not exist in the process of manufacturing.

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PART – II

2. (a) (i) Define operation system briefly with some example. 3
 (ii) Discuss recent trends in production management and its impact to global competition? 4
- (b) (i) What is demand forecasting? What are the methods of forecasting? 3
 (ii) An investigation into the use of Bus in 5 towns has resulted in the following data:

Population in town (in lakhs)	(X)	40	60	70	80	100
No. of Bus	(Y)	450	650	550	800	1000

Fit a linear regression of Y on X and estimate the number of scooters to be found in a town with a population of 180 lakhs. 6

3. (a) (i) What is Product design and define its objectives? 4
 (ii) What are the factors which influences a product design? 4

(b) The following data is available for a manufacturing unit:

No. of operators	:	15
Daily working hours	:	8
No. of days per month	:	25
Std. production per month	:	300 units
Std. Labour hours per unit	:	8

The following information was obtained for November 2015:

Man days lost due to absentism	:	30
Unit produced	:	240
Idle Time	:	276 man hours

Find the following: —

- (a) Percent absentism
 (b) Efficiency of utilisation of labour
 (c) Productive efficiency of labour
 (d) Overall productivity of labour in terms of units produced per man per month. 8

4. (a) The marketing time of Nestle India Ltd requires some household data from a different city before introducing their new product. The team has been ordered by the management to perform this job in two days, the coming Saturday and Sundays. So, the team has no option other than to spend half a day in each of the cities. the relevant data are given below:

Day and time	Probability of a household contact			
	City 1	City 2	City 3	City 4
Saturday morning	0.32	0.85	0.16	0.64
Saturday evening	0.60	0.56	0.95	0.80
Sunday morning	0.70	0.35	0.40	0.62
Sunday evening	0.10	0.72	0.64	0.90
No. of households expected to be interviewed	150	100	200	200

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As an expert of Operations research in the company, you have been requested by the management to suggest the plan (visiting) to the team in the 4 cities so that the expected response may be optimized. **8**

- (b)** After observing heavy congestion of customers over a time of Diwali marketing in a shopping mall, the mall administrator has decided to set up an additional counter in a nearby site. He has compiled statistics relating to the customer's arrival pattern and service pattern as given below. He has also decided to evaluate the services by the using simulations technique.

Arrivals		Services	
Inter-arrival time (minutes)	Probability	Service time (minutes)	Probability
2	0.22	4	0.28
4	0.30	6	0.40
6	0.24	8	0.22
8	0.14	10	0.10
10	0.10		

Assume:

- (i) The starting hours at 9.00 a.m.
- (ii) Only one counter is set up.
- (iii) The following 12 Random Numbers are to be used to depict the customer arrival pattern:

78, 26, 94, 08, 46, 63, 18, 35, 59, 12, 97 and 82

The following 12 Random Numbers are to be used to depict the service pattern:

44, 21, 73, 96, 63, 35, 57, 31, 84, 24, 05, 37

You are required to find out the probability of being idle and average time spent by a customer waiting in queue. **8**

- 5. (a) (i)** What are the difference between CPM and PERT? **3**
- (ii)** A project with normal duration and cost along with crash duration and cost for each activity is given below:

Activity	Normal time (Hrs.)	Normal cost (₹)	Crash time (Hrs.)	Crash cost (₹)
1-2	5	200	4	300
2-3	5	30	5	30
2-4	9	320	7	480
2-5	12	620	10	710
3-5	6	150	5	200
4-5	0	0	0	0
5-6	8	220	6	310
6-7	6	300	5	370

Overhead cost is ₹ 50 per hour.

Required:

Draw network diagram and identify the critical path. **6**

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- (b) The data on the running costs per year and resale prices of equipment A whose purchase price is ₹ 3,00,000 are as follows :

Years	1	2	3	4	5	6	7
Running cost (₹)	45,000	57,000	69,000	87,000	1,08,000	1,35,000	1,65,000
Resale value (₹)	1,50,000	75,000	37,500	18,000	12,000	12,000	12,000

- (i) What is the optimum period of replacement?
(ii) When equipment A is two years old equipment B which is a new model for the same usage is available. The optimum period for replacement is 4 years with an average cost of ₹1,08,000. Should equipment A be changed with equipment B? If so, when? [7]

Section – B : (Strategic Management)

PART - I

6. (a) Choose the correct Answer: (6x1=6)

- (i) A corporate strategy can be defined as:
(a) A list of actions about operational planning and statement of organisation structure and control system;
(b) A statement of how to compete, direction of growth and method of assessing environment;
(c) Abatement of organisation's activities and allocation of resources;
(d) A course of action or choice of alternatives, specifying the resources required to achieve certain stated objectives;
- (ii) A strategic business unit (SUB) is defined as a division of an organisation:
(a) That help in the marketing operation;
(b) That enable managers to have better control over the resources;
(c) That help in the choice of technology;
(d) That help in the allocation of scarce resources;
- (iii) McKinney's 7-s framework consists of:
(a) Structure, strategy, software, skills, styles, staff and supervision
(b) Structure, strategy, systems, skills, styles, syndication and shared values.
(c) Structure, strategy, systems, skills, steering power, styles and shared values.
(d) Structure, strategy, staff, skills, systems, shared values, super ordinate goal.
- (iv) The Product Market matrix comprising of Strategies of Penetration, Market Development Product Development and Diversification was first formulated by
(a) Ansoff
(b) Drucker
(c) Porter
(d) Andrews
- (v) 'Niche' is similar to the
(a) Growth strategy
(b) Milking strategy
(c) Flanking strategy
(d) Survival strategy

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- (vi) For an actor in Bollywood, his outstanding performance would be a /an
- (a) Asset
 - (b) Strategic Asset
 - (c) Core competency
 - (d) Capability

PART II

(Answer any two questions out of three questions)

7. (a) What are the difference between vision and mission? Discuss in brief the formulation of Organizational Mission. **6**
- (b) Explain the objective of SWOT analysis and its advantages and disadvantages. **6**
8. (a) Discuss the various stages in Strategic Planning. **6**
- (b) Write a short note on Strategic Business Unit. **6**
9. **Write Short notes on any three questions out of the following four questions. (3x4=12)**
- (a) Strategy formulation
 - (b) BCG Theory
 - (c) BPR
 - (d) ADL matrix