Paper 9- OPERATIONS MANAGEMENT & 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 – I : [Operations Management]

1. (a) Choose the correct answer from the given four alternatives. [1x10=10]

(i) The material handling cost per unit of product in Continuous production is:
(a) Highest compared to other systems,
(b) Lower than other systems,
(c) Negligible,
(d) Cannot say.

(ii) The desired objective of Production and Operations Management is:
(a) Use cheap machinery to produce,
(b) To train unskilled workers to manufacture goods perfectly,
(c) Optimal utilisation of available resources,
(d) To earn good profits.

(iii) In aggregate planning, one of the methods in modification of demand is:
(a) Differential Pricing,
(b) Lay off of employees,
(c) Over time working,
(d) Sub contracting.

(iv) In a CPM/PERT network a dummy activity is necessary when
(a) two activities have the same starting node
(b) two activities have the same ending node
(c) a node does not actually connect to another node
(d) when two activities share the same starting and ending node

(v) Fixing the flow lines of materials in production is known as:
(a) Scheduling,
(b) Loading,
(c) Planning,
(d) Routing.

(vi) Preferred numbers are used to:
(a) To determine the number of varieties that are to be manufactured,
(b) To the test the design of the product,
(c) To ascertain the quality level of the product,
(d) To evaluate the production cost.

(vii) When work centers are used in optimal sequence to do the jobs, we can:
(a) Minimise the set up time,
(b) Minimse operation time,
(c) Minimise the breakdown of machines,
(d) Minimise the utility of facility.

(viii) Which one of the following standards is associated with the "Quality Assurance in Production and Installation"?
(a) ISO 9001
(b) ISO 9002
(c) ISO 9003
(d) ISO 9004

(ix) The time horizon selected for forecasting depends on:
(a) The salability of the product,
(b) The selling capacity of Salesman,
(c) Purpose for which forecast is made,
(d) Time required for production cycle

(x) In Continuous manufacturing system, we need:
(a) General purpose machines and Skilled labours,
(b) Special machine tools and highly skilled labours,
(c) Semi automatic machines and unskilled labours,
(d) General purpose machines and unskilled labours.

(b) Match the following: **[1×6=6]**

	Column 'A'		Column 'B'
a.	Normal Curve	i.	Project Funding
b.	Stock level	ii.	Capacity planning
c.	Short Run Average Cost	iii.	Job Evaluation
d	Industrial Finance Corporation of India	iv.	Statistical Quality Control
e.	Ranking Method	v.	Value Analysis
f.	Improvement in productivity	vi.	Inventory Control

(c) State whether the following statements are True/False. **[1×6=6]**

(i) EOQ formula does not consider storage cost.
(ii) Results available from work sampling study is 100% accurate.
(iii) In a Network Analysis, a job for which the slack time is zero is known as non-critical job.
(iv) Z chart is a chart used in Programme Control.
(v) When demand does not exist in the market, we should start Production Incentives.
(vi) It is justified to consider the effect of working condition both in Work Measurement and Job-Evaluation.

[Answer any three questions from the following]

2. (a) What is operations management? Discuss the objectives of operations management.

(b) A manager has to decide about the number of machines to be purchased. He has three options i.e., purchasing one, or two or three machines. The data are given below:

Number of machine	Annual fixed cost	Corresponding range of output
One	₹12,000	0 to 300
Two	₹15,000	301 to 600
Three	₹21,000	601 to 900

Variable cost is ₹ 20 per unit and revenue is ₹ 50 per unit

(a) Determine the break-even point for each range

(b) If projected demand is between 600 and 650 units, how many machines should the manager purchase? **[6+10=16]**

3. (a) Discuss the characteristics of a good product design.

(b) How technological development affects industrial productivity? **[9+7=16]**

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 not 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.

(b) As a tool service centre the arrival rate is two per hour and the service potential is three per hour. Simple queue conditions exist.
The hourly wage paid to the attendant at the service centre is ₹1.50 per hour and the hourly cost of a machinist away from his work is ₹ 4.
Calculate:

(i) The average number of machinists being served or waiting to be served at any given time.
(ii) The average time a machinist spends waiting for service.
(iii) The total cost of operating the system for an eight – hour day.
(iv) The cost of the system if there were two attendants working together as a team, each paid ₹ 1.50 per hour and each able to service on average 2 per hour.

[10+6=16]

5. (a) In a factory, there are six jobs to perform, each of which should go through two machines A and B, in the order AB. The processing timings (in hours) for the jobs are given here. You are required to determine the sequence for performing the jobs that would minimise the total elapsed time, T. What is the value of T?

Job	Machine A	Machine B
1	7	3
2	4	8
3	2	6
4	5	6
5	9	4
6	8	1

(b) An electric company which generates and distributes electricity conducted a study on the life of poles. The repatriate life data are given in the following table:

Life data of electric poles

Year after installation:	1	2	3	4	5	6	7	8	9	10
Percentage poles failing:	1	2	3	5	7	12	20	30	16	4

If the company now installs 5,000 poles and follows a policy of replacing poles only when they fail, how many poles are expected to be replaced each year during the next ten years?

To simplify the computation assume that failures occur and replacements are made only at the end of a year.

If the cost of replacing individually is ₹ 160 per pole and if we have a common group replacement policy it costs ₹ 80 per pole, find out the optimal period for group replacement. **[7+9=16]**

Section – II: (Strategic Management)

6. Choose the correct answer from the given alternatives: [1x6=6]

(i) New entrants to an industry are more likely when.
(a) It is difficult to gain access to distribution channels
(b) Economies of scale in the industry are high
(c) Product differentiation in the industry is low
(d) Capital requirement in the industry are high

(ii) Typically Profits are highest in which stage of the industry life-cycle ?
(a) Introduction
(b) Growth
(c) Maturity
(d) Decline

(iii) A 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

(iv) A supplier group is powerful if
(a) It is not concentrated
(b) Offers unique products
(c) Its customers can backward integrate
(d) There are no switching costs

(v) The strategy which concentrates around a production market is:
(a) Vertical Integration
(b) Niche
(c) Horizontal Expansion
(d) Diversification

(vi) The reason for failure of Strategic Management may be ascribed to
(a) Over-estimation of resource competence
(b) Failure to obtain senior management commitment
(c) Failure to obtain employee commitment
(d) All of the above

[Answer any two questions from the following]

7. **(a)** Discuss the differences between objectives and goals.

(b) What are the factors influencing portfolio strategy? **[4+8=12]**

8. **(a)** State the benefits of Contingency Planning.

(b) State the various advantages and disadvantages of SBU structure. **[6+6=12]**

9. **Write short notes on any three of the following:** **[4x3=12]**

(a) Marketing Objectives
(b) McKinsey's 7–s Frame work
(c) Expected Results from BPR.
(d) Corporate Planning