



CII Institute of Logistics
PGDSCM & Certificate Programs
Semester-end Examination – June 2010

OPERATIONS MANAGEMENT II

Time : Three Hours

Marks : 100

Part A

Answer all questions

(10 x 1 = 10 Marks)

1. The ideal example for fixed position layout is
 - a) Machine shop manufacturing components
 - b) Wheels manufacturing in large scale from raw materials to finished product
 - c) Assembly line of Aircrafts / ships etc.
 - d) Manufacturing lines of auto components
2. The pair of costs associated with 'EOQ' are
 - a) Ordering cost and setup cost
 - b) Set up cost and Inventory carrying cost
 - c) Ordering cost and Inventory carrying cost
 - d) None of the above
3. For Service Capacity planning which of the following theory comes in handy?
 - a) Inventory control technique
 - b) Game theory
 - c) Queuing Theory
 - d) None of these
4. Major drawback of a product layout is
 - a) Cost effectiveness
 - b) Lack of Flexibility
 - c) Lack of Customisation
 - d) Both 'b' and 'c'
5. Bill of Materials is a Pre-requisite for three of the following. Identify the one which is exceptional.
 - a) Inventory control exercise based on 'Value' based analysis.
 - b) MRP
 - c) ERP
 - d) Inventory control example for frequency of consumption approach
6. Focused factory is a concept followed in
 - a) Mass construction
 - b) JIT Production
 - c) TPM
 - d) Kanban Production system
7. 'Six Sigma' refers to
 - a) Mean of Variables
 - b) Variability of Standard deviation
 - c) Range
 - d) Both 'b' and 'c'
8. Paint shops in a car manufacturing unit, is an example of
 - a) EOQ
 - b) EBQ
 - c) EOQ and EBQ
 - d) None of these
9. In a 'PERT' chart, denominator used for the time estimate formula is
 - a) 2
 - b) 4
 - c) 6
 - d) 3
10. 'ABC' analysis of Inventory control

- a) Nothing but Activity based costing approach
- b) Economic value based approach
- c) Frequency of Consumption based approach
- d) None of these

Part B

Answer any four

(4x15 = 60 marks)

1. What are the seven factors that could influence a decision on plant location? Discuss the one in detail about availability of land?
2. What are the key factors that could influence the JIT concept. Explain with appropriate example
3. Distinguish between EOQ and EBQ citing one example for each of them.
4. Explain the reasons for the formula for time estimate between any activity in a PERT network, the way it is.
5. For an Airline Ticketing desk, the customers arrive at the rate of 20 per hour. Service time is exponentially distributed. On an average it takes 2 minutes to handle every customer. Find out
 - a. The average time the customer will spend in the system
 - b. The expected number of customers waiting to be served
 - c. System Utilisation in %
 - d. Idle time of the counter in %
 - e. The probability of zero customer in the system
6. Write short notes on any three of the following.
 - a. Range chart
 - b. Capacity (process)ratio
 - c. Preceding and Proceeding activity
 - d. ISO9000 standards

Part C

Answer all the Questions of this part:

(3x10=30 marks)

1. A construction company is preparing a PERT network for having the foundation of new art museum. Time estimates (all three types) have been given activity wise in the table below.

| Activity | Predecessor | Optimistic Time (weeks) | Pessimistic Time (weeks) | Most Likely Time (weeks) |
|----------|-------------|-------------------------|--------------------------|--------------------------|
| A | None | 2 | 4 | 3 |
| B | None | 8 | 8 | 8 |
| C | A | 7 | 11 | 9 |
| D | B | 6 | 6 | 6 |
| E | C | 9 | 11 | 10 |
| F | C | 10 | 18 | 14 |
| G | C, D | 11 | 11 | 11 |
| H | F,G | 6 | 14 | 10 |
| I | E | 4 | 6 | 5 |
| J | I | 3 | 5 | 4 |
| K | H | 1 | 1 | 1 |

- a. Draw a PERT network
 - b. Compute the slack for each activity and determine the critical path.
 - c. The company specifies a penalty of Rs. 5,000 per week for period of execution beyond 37 weeks. What is the probability that this company will have to a maximum penalty of Rs. 15,000.
2. Answer the following:
 - a. What are the elements of ISO9001:2000 Quality system.
 - b. Why are 'Standards' required at all?

- c. A certain product has been statistically controlled with a process average of 46 and a standard deviation of 1.0. The product is being sold to 2 customers who have different specification and requirements of 48 ± 4.0 for customer 'A' and 46 ± 4.0 for customer 'B'.
 - I. Based on the above process setup, what percent of the product produced will not meet the specification setup of customer 'A'?
 - II. Do you think that shift of the process to have 47 ± 2.0 , would be desirable. Explain your answer? (Note both A and B has demand of equal volumes).
- 3. Develop a 'MRP' plan based on the following data
 - a. Product A is made up of 1 unit of B, 2 units of C and 1 unit of D. C is made up of 2 units of D and 3 units of E.
 - b. The lead time are 1 week for the product A, B and C and 2 weeks for the products D & E.
 - c. The On hand inventories are of 20, 10, 20 and 10 units of A, C, D & E respectively and no stock of B.

| WEEK | 1 | 2 | 3 | 4 | 5 | 6 |
|--------------------|---|----|---|---|----|---|
| GROSS REQUIREMENTS | - | 30 | - | - | 30 | - |
