



CII Institute of Logistics
PGDSCM & Certificate Programs
Semester-end Examination – June 2009

Operations Management-II

Time : Three Hours

Marks : 100

Part A

Answer all questions

(20 x 1 = 20 Marks)

1. The construction of large aircraft and ships follow
 - a) Product layout
 - b) Combination layout
 - c) Cellular layout
 - d) Fixed position layout
2. The control chart, which is used to control dispersion, is known as
 - a) x-bar chart
 - b) p-chart
 - c) Number of defects chart
 - d) R chart
3. The additional stock kept to manage uncertainty of demand is called, _____
4. Tools used in scheduling and controlling projects _____
5. The distortion of demand information in the supply chain leads to variability in demand across supply chain. This effect is called as _____
6. Work Measurement is also known as
 - a. Work Study
 - b. Time Study
 - c. Unit of Work
 - d. Work Technique
7. Marginal Costing targets profit (True/False)
8. Economic order quantity is arrived by balancing.....cost and.....cost.
9. Most of the service capacity planning is done by
 - a) MRP
 - b) Queuing system theory
 - c) PPC
 - d) MPS
10. Flexibility and customization is not possible in
 - a) Product layout
 - b) Functional layout

- c) Fixed position layout
- d) All of the above.

11. Which of the following is not a basic element of JIT system?
 - a) Cellular layouts
 - b) Push Production system
 - c) Small lot system
 - d) Flexible resources
12. Tools used in scheduling and controlling projects
 - a) PERT
 - b) CPM
 - c) Precedence diagram
 - d) All the above
13. 95% service level means
 - a) Continuous improvement
 - b) Only 5% times stockout occurs
 - c) Only 5% times stocks are available
 - d) None of the above
14. Bill of materials is otherwise called as
 - a) Product structure tree
 - b) Bill of resources
 - c) Input-output control report
 - d) Safety stock
15. Focused factory is a concept followed in
 - a) Mass customization
 - b) Just in time production
 - c) TPM
 - d) Kanban production system
16. In six sigma concept, the sigma means
 - a) Mean of variable
 - b) Variability in terms of standard deviation
 - c) Range
 - d) None of the above
17. The ability of the process to meet the design specifications for a product is known as
 - a) System capacity
 - b) Process capability
 - c) Tolerance
 - d) Capacity limit
18. Service facility location is more influenced by proximity to raw materials.
TRUE/FALSE.
19. The theory of constraints is proposed by Eliyahu M.Goldratt . TRUE/FALSE

20. In a CPM/PERT network, an event refers to
- The occurrence of a delay in the project
 - An activity inserted into the network to show a precedence relationship with no passage of time.
 - The beginning or completion of an activity or project.
 - The earliest an activity can start.

Part B

Answer all the four

Marks: 4 x 10 =40

- Explain the different types of facility layouts used in manufacturing?
- Explain the different types of control charts used for process control?
 - How do the location problems for a manufacturing company, a government hospital, a fire station, and a new railway station differ from one another?
- List the assumptions of a simple EOQ model. What are the components of this Model? Explain 'lead time' graphically.
- What is the role of inventory in supply chain management?
- The following are the activities in a construction project, Draw the

Activity	Duration
1-2	10
1-3	15
2-3	5
2-4	18
3-4	8
4-5	20

network for the project, Find the critical path.

6. Given the data in Table below and using the assignment method, how should the jobs be assigned to the machines in order to minimize cost.

Job	Machine			
	A	B	C	D
1	3	13	6	2
2	6	8	9	12
3	5	10	12	9
4	9	13	10	6

Part C

Answer all the four

Marks: 4 x 10 =40

- A construction Company is preparing a PERT network for laying the foundation of a new art museum. Given the following set of activities, their predecessor requirements; and three time estimates of completion times:

Time Estimates (Weeks)

Activity	Predecessor	Optimistic	Pessimistic	Most Likely
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
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- (i) Draw the PERT network
- (ii) Compute the slack for each activity and determine critical path
- (iii) The contract specifies a Rs.5,000 per week penalty for each week the completion of the project extends beyond 37 weeks. What is the probability that this company will have to pay a maximum penalty of Rs.15,000?

2. a) What are the elements of ISO9001:2000 Quality systems?

b) A certain product has been statistically controlled at a process average of 46 and a standard deviation of 1.00. The product is presently being sold to 2 customers who have different specification requirements. Customer A has established a specification of 48 ± 4.0 for the product, and customer b has specification of 46 ± 4.0 .

- I. Based on the present process set up, what percent of the product produced will not meet the specifications set up by customer A?
- II. What percent of the product will not meet the specifications of customer B?
- III. Assuming that the 2 user's needs are equal, a suggestion is made to shift the process target to 47. At this suggested value, what percent of the product will not meet the specifications of Customer A?
- IV. At the suggested process target, what percent of the product will not meet the specifications of Customer B?
- V. Do you think that this shift to a process target of 47 would be desirable? Explain your answer.

3. The goals of JIT are

- 1. Zero inventories
- 2. Zero failures
- 3. Elimination of Wastes
- 4. Zero lead-time
- 5. Smooth flow process

Explain how these goals are achieved using JIT. Explain the elements of JIT and how JIT can be implemented in a manufacturing organization.

4. Develop a MRP plan for the following data:

End 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. The lead time are 1 week for item A, B and C and 2 weeks for Item D and E. Items A, C, D and E have on hand inventories of 20, 10, 20 and 10 units respectively.

The master production schedule for product A is given below:

Week	1	2	3	4	5	6
Gross Requirements	--	30	--	--	30	--
