

APJ Abdul Kalam Technological University  
 First Semester M. Tech Degree Examination December 2016  
 Ernakulam II Cluster

**05ME 6403 MANUFACTURING SYSTEMSMANAGEMENT**

Time: 3 hours.

Max. Marks: 60

**MODULE 1**

- 1 a Define Facility Location. (3 marks)
- b Discuss various criteria for make or buy decision? (3 marks)
- c The new Health-care facility is targeted to serve seven census tracts in Delhi. The table given below shows the coordinates for the center of each census tract, along with the projected populations, measured in thousands. Customers will travel from the seven census tract centers to the new facility when they need health-care. Two locations being considered for the new facility are at (5.5, 4.5) and (7, 2), which are the centers of census tracts C and F. Details of seven census tract centers, coordinate distances along with the population for each center are given below. If we use the population as the loads and use rectilinear distance, which location is better in terms of its total load distance score?

Sl No	Census tract	(x, y)	Population
1	A	(2.5,4.5)	2
2	B	(2.5,2.5)	5
3	C	(5.5,4.5)	10
4	D	(5,2)	7
5	E	(8,5)	10
6	F	(7,2)	20
7	G	(9,2.5)	14

**MODULE 2**

- 2 a Explain group layout with figure? (4 marks)
- b Explain the initial requirement for CRAFT and various steps involved in of CRAFT algorithm? (4 marks)
- c Explain Relationship diagram with an example? (4 marks)

**MODULE 3**

- 3 a “Mixed strategies are always superior to pure strategies in an aggregate production planning exercise”. Comment on this statement. (4 marks)

- b Beta corporation has developed a forecast for a group of items that has the following demand pattern (6 marks)

Quarter	Demand
1	270
2	220
3	470
4	670
5	450
6	270
7	200
8	370

- i. Plot the demand as a histogram. Determine the production rate required to meet average demand and plot the average demand rate on the graph
- ii. Plot the actual cumulative forecast requirements over time and compare them with the available forecast requirements. Indicate the excess inventories and backorders on the graph

- c Explain briefly Material Requirement Planning(MRP) (8marks)

OR

- 4 a Explain Bill of Materials with a suitable example? (4 marks)
- b Discuss Enterprise Resource Planning (ERP) and its advantages and disadvantages? (6 marks)
- c What do you meant by lot sizing in MRP? What are the methods available to determine the effective lot size in MRP? (8 marks)

#### MODULE 4

- 5 a How is the concept behind ABC classification useful for managing inventory? (6 marks)
- b A manufacturing company purchase 9000 parts of a machine for its annual requirements ordering for month usage at a time, each part costs Rs. 20. The ordering cost per order is Rs. 15 and carrying charges are 15% of the average inventory per year. You have been assigned to suggest a more economical purchase policy for the company. What advice you offer and how much would it save the company per year? (6 marks)
- c Explain briefly Just in Time Production System (JIT). (6 marks)

OR

- 6 a Distinguish between push and pull production systems (6 marks)
- b What is Kanban and how it operates? (6 marks)
- c Briefly explain the objectives and benefits of inventory control? Enumerate the various factors affecting Inventory Control Policy of a company? (6 marks)