Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 08

M.Tech.(EPDT) (2016 & Onwards) (Sem.–2)

COMPUTER INTEGRATED MANUFACTURING SYSTEMS

Subject Code : MTET-202

Paper ID : [74399]

Time : 3 Hrs. Max. Marks : 100

INSTRUCTIONS TO CANDIDATES :

1. **Attempt any FIVE questions in all, out of EIGHT questions.**
2. **Each question carries TWENTY marks.**

1. a) Enlist various objectives of a manufacturing system and also state the various techniques to identify the business opportunities in manufacturing. (10)

   b) What are the basic manufacturing operations carried out in the manufacturing companies? Explain with suitable examples. (10)

2. a) Explain the following :

   i) Methods of inventory planning and control. (5)

   ii) The significance of breakeven point. (5)

   b) Explain the various production concepts and their associated mathematical models. (10)

3. a) Explain the various activities of *Production Planning* And *Control* and their relationship with other functions of production system using a suitable flowchart. (10)

   b) What is a MRP-II system? Explain its characteristics and working. (10)

4. a) Explain the various techniques used for *manual* and *automated* factory data collection system. (10)

   b) Explain the principle and working of the following : (10)

   i) Types of Barcode systems used for part identification.

   ii) Coordinate measuring machine.

5. a) Explain the following in detail : (10)

   i) Multilevel scanning method of *computer process monitoring*.

   ii) Direct Digital Control.

   b) Explain the following :

   i) Difference between regulatory and adaptive control strategies. (5)

   ii) Classification of input variables used in manufacturing process monitoring. (5)

6. a) Explain the following :

   i) Difference between product inspection and process monitoring. (5)

   ii) Use of machine vision for automated inspection. (5)

   b) Derive the mathematical model to represent the cost of processing and sorting the batch for final inspection and distributed inspection methods. (10)

7. a) What is a DNC system? Explain the various components, types and advantages of a DNC system. (10)

   b) Discuss the key characteristic and process parameters which need to be focused while designing an automatic material handling system for CIMS. (10)

8. a) What is CIMS? What are various elements required in CIMS? Explain advantages and disadvantages of CIMS. (10)

   b) Explain the principle and advantage Rapid prototyping. Also state how Artificial Intelligence (AI) can be advantageous in CIMS. (10)