USN | | | | | | | | | | **18MT645**

Sixth Semester B.E. Degree Examination, June/July 2023
Computer Integrated Manufacturing

Time: 3 hrs.   Max. Marks: 100

Note: *Answer any FIVE full questions, choosing ONE full question from each module.*

Module-1

1 a. Define Automation. Explain the types of Automation. **(10 Marks)**
   b. Explain Major Elements of CIM systems. **(06 Marks)**
   c. A product machine is operated 65h/week at full capacity. Its Production rate is 20 units/hr. During a certain week, the machine produced 1000 goods parts and was idle the remaining time. i) Determine the production capacity of the machine.
   ii) What was the utilization of the machine during the week under consideration? **(04 Marks)**

OR

2 a. With a neat sketch, explain Linear Walking Beam Mechanism. **(10 Marks)**
   b. Explain the reason for using storage buffers in Automated flow lines. **(05 Marks)**
   c. With a neat sketch, Rack and Pinion Mechanism. **(05 Marks)**

Module-2

3 a. Explain the different types of Automated Assembly Systems. **(10 Marks)**
   b. Explain the Upper Bound Approach and Lower Bound Approach in analyzing transfer lines without storage buffer. **(10 Marks)**

OR

4 a. Explain the common reasons for downtime on an Automated Production Line. **(10 Marks)**
   b. Briefly explain i) Cycle Time   ii) Balance Delay. **(06 Marks)**
   c. What are the factors affecting Line Balancing? **(04 Marks)**

Module-3

5 a. Explain the principles used in product design to Facilitate Automated Assembly. **(10 Marks)**
   b. With a neat sketch, explain the Physical Configuration of Automated Assembly Systems. **(10 Marks)**

OR

6 a. With a neat sketch, explain Elements of the parts delivery systems. **(10 Marks)**
   b. Define AGV's. Explain the types of AGV's. **(10 Marks)**

Module-4

7 a. Explain the benefits of CAPP. **(10 Marks)**
   b. With the help of block diagram, explain Retrieval type CAPP Systems. **(10 Marks)**

OR

8 a. Briefly explain the Generative Process Planning Systems. **(10 Marks)**
   b. With the help of block diagram, explain Inputs to the MRP systems. **(10 Marks)**

Module-5

9 a. Define Numerical Control Systems. Explain the advantages of NC Machine tools. **(10 Marks)**

    b. With a neat block diagram, explain Configuration of CNC Machine Control Units. **(10 Marks)**

OR

10 a. With a neat sketch, explain Horizontal Machining Centre. **(08 Marks)**

    b. Explain the features of CNC Machining Centers. **(08 Marks)**

    c. Describe the following codes :
i) G01   ii) G03   iii) G10   iv) G00. **(04 Marks)**

* * * * *