CBCS SCHEME

USN | | | | | | | | | | |

15ME62

# Sixth Semester B.E. Degree Examination, Jan./Feb. 2021
## Computer Integrated Manufacturing

Time: 3 hrs. Max. Marks: 80

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



### Module-1

1 a. List and explain different elements of CIM system. **(06 Marks)**

b. Define automation and list the reasons for automation. **(04 Marks)**

c. A production machine operates 80 hrs/week at full capacity its production rate is 20 unit/hr. During a certain week, the machine produced 1000 parts and was idle for the remaining period.

i) Determine the production capacity of machine

ii) Calculate the utilization of machine in a week.

iii) Determine plant capacity when A = 90% and W = 80%. **(06 Marks)**

**OR**

2 a. What are the Transfer Mechanisms and explain any one type of transfer mechanism used to transfer the work part from one station to another station. **(08 Marks)**

b. An 8 station rotary indexing machine operates. With an ideal cycle time of 20 sec. The frequency of line stop occurrence is 0.06. stop/cycle on an average. When a stop occurs it takes an average of 3 min. to repair. Determine the following:

i) Average Production Time, Tp ii) Average Production Rate, RP

iii) Line Efficiency, E iv) Proportion of down time **(08 Marks)**

### Module-2

3 a. List and explain any two functional areas of CAD System. **(08 Marks)**

b. Explain the following with suitable examples.

i) 2 D Transformations. ii) Translation

iii) Rotation and Scaling iv) Concatenation **(08 Marks)**

**OR**

4 a. Using a block diagram or flow chart, explain the information flow in a retrieval – type CAPP System. **(08 Marks)**

b. List the various functions performed by production planning and control department. **(04 Marks)**

c. Draw the flow chart of the MRP System and explain in brief. **(04 Marks)**

### Module-3

5 a. What is FMS and explain any one types of FMS. **(06 Marks)**

b. List the benefits and applications of FMS. **(04 Marks)**

c. Explain AS/RS material handling system, in FMS. **(06 Marks)**

**OR**

6 a. Explain different methods of line balancing. **(09 Marks)**

b. Briefly explain computerized line balancing. **(07 Marks)**

### Module-4

7 a. Sketch and explain basic components of CNC. **(06 Marks)**

b. Differentiate between Manual Part Programming and Computer Assisted Part Programming. **(04 Marks)**

c. Explain in brief, different types of statements used in APT language. **(06 Marks)**

**OR**

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| 8 | a. | List and explain any one type of robot Configurations. | **(06 Marks)** |
| | b. | What are end effectors, explain in brief different types of it in robot application. | **(05 Marks)** |
| | c. | Explain different types of robot sensors. | **(05 Marks)** |

## Module-5

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|---|---|---|---|
| 9 | a. | List the advantages, disadvantages and applications of additive manufacturing. | **(06 Marks)** |
| | b. | List and explain any one type of additive manufacturing process. | **(06 Marks)** |
| | c. | Explain briefly hybrid manufacturing process. | **(04 Marks)** |

**OR**

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|---|---|---|---|
| 10 | a. | Explain IOT applications in manufacturing. | **(05 Marks)** |
| | b. | Explain Big-data and cloud computing. | **(06 Marks)** |
| | c. | Explain, how IOT influence in industrial automation. | **(05 Marks)** |

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