



# GBGS SCHEME

15MA62

# Sixth Semester B.E. Degree Examination, June/July 2019 Computer Integrated Manufacturing

Time: 3 hrs.

Max. Marks: 80

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

## Module-1

a. What is CAD/CAM? Briefly explain the concept of concurrent engineering.
b. Briefly explain concepts of CIM. Explain the elements of CIM system.

(08 Marks)

(08 Marks)

#### OR

2 a. Explain is brief the design process using CAD with flow chart.

(08 Marks)

b. A certain part is routed through six machines in a batch production plant. The setup and operation times for each machine are given in table below the batch size is 100 and average non operation time per machine in 12 hr. Determine: i) MLT ii) production rate for operation 3.

| Machine              | 1   | 2   | 3    | 4   | 5   | 6   |
|----------------------|-----|-----|------|-----|-----|-----|
| Setup time (hr)      | 4   | 2   | 8    | 3   | 3   | 4   |
| Operation time (min) | 5.0 | 3.5 | 10.0 | 1.9 | 4.1 | 2.5 |

(08 Marks)

#### Module-2

a. Explain the retrieval Computer Aided Process Planning (CAPP) system with a flowchart.

(08 Marks)

b. Explain in brief the working of MRP system with its structure.

(08 Marks)

### OR

4 a. Write a note on shop floor and inventory control.

(08 marks)

b. Write a brief note on ERP.

(08 Marks)

#### Module-3

5 a. Describe the challenges and benefits of applying Group Technology(GT).

(08 Marks)

b. Describe the reasons for using a part coding scheme and opitz parts coding system.

(08 Marks)

#### OR

Briefly explain group machine cell design with manual handling. List its advantages.

Apply the rank order clustering technique to the part machine incidence matrix is table to identify logical part families and machines groups parts and identified by letters and machines by numbers.

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|-----------|--------------|----------|
| PA        | D            | $\Gamma$ |
| PA        | K            | 1        |
|           |              |          |

|          |       |   |   |   | 100   |   |   | The second second |   |
|----------|-------|---|---|---|-------|---|---|-------------------|---|
| Machines | A     | В | C | D | Е     | F                                       | G                                       | Н                 | I |
| 1        |       |   | 1 | 1 | 1     |   | 1                                       |                   |   |
| 2        | 1     | 1 |   |   |       |   | 1                                       | 1                 | 1 |
| 3        | .405. |   |   |   |       | 1                                       | $\sqrt{1}$                              | 1                 |   |
| 4        | 1     | 1 |   | 1 |       |   |   |                   |   |
| 5        |       |   | 1 |   | 1_    |   |   |                   |   |
| 6        | 7     | 1 |   |   | (Sac. |   |   | 1                 | 1 |
| 7        | 1     |   | 1 | 1 |       |   |   |                   |   |
| 8        |       | 1 |   | 4 |       | 1                                       |   | 1                 | 1 |
|          |       |   |   | 1 | -     | *************************************** | *************************************** |                   | * |

(08 Marks)

#### Module-4

What are the types of flexibility? Briefly explain FMS. (08 marks) b. List the application and benefits of applying FMS.

(08 Marks)

8 Briefly explain AGV's. List applications.

(08 Marks)

Write a note on vehicle management and safety.

(08 Marks)

#### Module-5

With a neat sketch explain the anatomy of a robot.

(08 marks)

Briefly explain the types of end effectors, with necessary sketches.

(08 marks)

#### OR

Briefly explain the uses of sensors in robotics. 10 a.

(08 marks)

Explain:

i) Accuracy

ii) Repeatability.

(08 Marks)