Roll No:

# B-TECH
## (SEM V) THEORY EXAMINATION 2021-22
## COMPUTER INTEGRATED MANUFACTURING

*Time: 3 Hours* *Total Marks: 100*

**Note:** 1. Attempt all Sections. If require any missing data; then choose suitably.

### SECTION A

**1. Attempt *all* questions in brief.** **2 x 10 = 20**

| | |
|---|---|
| a. | Define NURBS? |
| b. | What are the factors should be considered in selection of tooling for CNC? |
| c. | What is master production schedule (MPS)? |
| d. | Give principle of an automated storage and retrieval system. |
| e. | What are the benefits of CAPP over manual process? |
| f. | Name the relationship between CAD and CAM? |
| g. | Write short note on point plotting in computer graphics. |
| h. | List different types of material handling equipments that is commonly employed in FMS. |
| i. | What is a Need of rapid prototyping? |
| j. | Write short note on Industry 4.0. |

### SECTION B

**2. Attempt any *three* of the following:** **10 x 3 = 30**

| | |
|---|---|
| a. | Define Group Technology (GT) List the various benefits of implementing a GT in a firm. Also bring out the advantages and limitation of using GT. |
| b. | What are the different types of robot configurations available? Write its relative merits, demerits and applications. |
| c. | Briefly discuss about the B-Spine and Bezier curves. |
| d. | Express how does IT facilitate concurrent engineering? |
| e. | List the two approaches commonly used in CAPP systems bringing out their advantages and limitations. |

### SECTION C

**3. Attempt any *one* part of the following:** **10x 1 = 10**

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|---|---|
| a. | Define Automation. Explain the various levels of Automation in detail. |
| b. | Explain the computerized elements of CIM system. |

**4. Attempt any *one* part of the following:** **10x 1 = 10**

| | |
|---|---|
| a. | Write the difference between wireframe ,surface and solid modeling technique in CAD. |
| b. | Draw a circle using Bresenham's Circle drawing algorithm with centre (-3, 8) and radius 12 units. |

**5. Attempt any *one* part of the following:** **10x 1 = 10**

| | |
|---|---|
| a. | List the advantage of computer aided part programming .What factors must be considered in selection of programming system? Discuss in detail. |
| b. | What are the problems that are associated with conventional NC? How can be it overcome in CNC? |

**6. Attempt any *one* part of the following:** **10x 1 = 10**

| | |
|---|---|
| a. | Explain in detail about robot programming concepts. |
| b. | Explain planning, Design and operation issues in FMS. |

**7. Attempt any *one* part of the following:** **10x 1 = 10**

| | |
|---|---|
| a. | Write short note on (i) AGV (ii) Capacity planning. |
| b. | Explain different types of Rapid prototyping techniques available explain in detail also write its application area. |