Printed Page:- **Subject Code:- BME0402**

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: IV - THEORY EXAMINATION (20.....- 20.....)

Subject: Computer Integrated Manufacturing

Time: 2 Hours **Max. Marks: 50**

General Instructions:

IMP: *Verify that you have received the question paper with the correct course, code, branch etc.*

1. *This Question paper comprises of* ***three Sections -A, B, & C.*** *It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.*

2. *Maximum marks for each question are indicated on right -hand side of each question.*

3. *Illustrate your answers with neat sketches wherever necessary.*

4. *Assume suitable data if necessary.*

5. *Preferably, write the answers in sequential order.*

6. *No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.*

SECTION-A 15

1. Attempt all parts:-

1-a. CIM is most effective in environments where: (CO1, K1) 1

(a) Only manual labor is used

(b) High customization is required

(c) Production is batch-based

(d) Repetitive, high-volume manufacturing is done

1-b. The coordinate system used in most CAD systems is: (CO2, K2) 1

(a) Polar

(b) Cylindrical

(c) Cartesian

(d) Spherical

1-c. The greatest limitation of group technology is: (CO3, K2) 1

(a) High initial investment in coding and classification

(b) Simplification of manufacturing

(c) Standardization of processes

(d) Reduction of setup time

1-d. Material handling system in FMS can include: (CO4, K1) 1

(a) Manual cranes

(b) Automated Guided Vehicles (AGVs)

(c) Human labor only

(d) Forklifts without guidance

1-e. Data from smart packaging helps to: (CO5, K2) 1

(a) Increase customer complaints

(b) Monitor package color

(c) Improve logistics accuracy

(d) Increase untracked losses

2. Attempt all parts:-

2.a. List the advantages of integrating CAD and CAM. (CO1, K2) 2

2.b. Define computer graphics. (CO2, K1) 2

2.c. List the different programming formats of NC programming. (CO3, K2) 2

2.d. State the benefit and limitations of variant type computer aided process planning. (CO4, K2) 2

2.e. List the characteristics of Deep Learning. (CO5, K2) 2

SECTION-B 15

3. Answer any three of the following:-

3-a. Differentiate between traditional manufacturing and computer integrated manufacturing. Highlight the role of automation and information technology. (CO1, K2) 5

3-b. Find the transformed coordinates of a triangle having vertices A (4, 1), B (7, 1) and C (7, 3) subjected to reflection through the line 2y = x. (CO2, K3) 5

3.c. Explain the principle of operation of a CNC machine tool with a labeled block diagram. (CO3, K2) 5

3.d. Explain the steps involved in advanced manufacturing planning. How is it different from traditional planning? (CO4, K2) 5

3.e. Illustrate the role of ML in Digital Manufacturing. What benefits does it offer in optimizing production processes? (CO5, K2) 5

SECTION-C 20

4. Answer any one of the following:-

4-a. Describe the major elements of a CIM system. (CO1, K1) 4

4-b. How does CIM improve decision-making in manufacturing? (CO1, K2) 4

5. Answer any one of the following:-

5-a. Explain the difference between World Coordinate System and User Coordinate System with suitable example. (CO2, K3) 4

5-b. What are the display device is commonly used in CAD applications? (CO2, K2) 4

6. Answer any one of the following:-

6-a. Explain the working of an Automatic Tool Changer (ATC). (CO3, K3) 4

6-b. Compare manual and CNC machining operations. (CO3, K2) 4

7. Answer any one of the following:-

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7-a.	Explain the role of process planning in manufacturing systems. (CO4, K2)	4
7-b.	Explain the importance and benefits of concurrent engineering. (CO4, K2)	4

8. Answer any <u>one</u> of the following:-

8-a.	Differentiate between Artificial Narrow Intelligence (ANI), Artificial General Intelligence (AGI), and Artificial Super Intelligence (ASI) with suitable examples. (CO5, K2)	4
8-b.	What are the benefits of AI-enabled inventory management? (CO5, K2)	4

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