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### M. TECH. DEGREE EXAMINATION, MODEL QUESTION PAPER – I

**First Semester**

### Branch: Mechanical Engineering

Specialisation: Advanced Manufacturing and Production Management

 **MMEMP 103 - COMPUTER INTEGRATED MANUFACTURING**

(Regular – 2013 Admissions)

Time: Three Hours Maximum: 100 Marks

*(Answer* **all** *questions)*

1. a) Comment on the co-relation between CAD/CAM/CIM. (3 marks)

 b) Define CAD/CAM tools based on their constituents. (5 marks)

 c) Explain DDA algorithm. (7 marks)

 d) Explain the basic geometric transformations both in 2D & 3D . (10 marks)

OR

 2. a) Classify CAD/CAM system based on host computer . (3 marks)

 b) List the various standards functioning at the various levels of graphics system.

 (5 marks)

 c) What are the various available software modules in CAD/CAM? (7 marks)

 d) Explain Bresenham’s line drawing algorithm. (10 marks)

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 3. a) List the various modeling techniques used in CAD. (3 marks)

 b) Explain briefly about the characteristics of Bezier curves. (5 marks)

 c) Explain the various surface manipulation techniques. (7 marks)

 d) Explain constructive solid geometric modeling technique. (10 marks)

 OR

 4. a) Discuss the parametric representation of curves. (3 marks)

 b) What are the various entities used in surface modeling technique in CAD.

 (5 marks)

 c) Explain the mathematical representation of hermite cubic spline curves.

 (7 marks)

 d) Explain boundary representation scheme to create the solid models in CAD.

 (10 marks)

 5. a) List the types of CNC machine tools. (3 marks)

 b) What are the main classifications of cutting tools for CNC machines. (5 marks)

 c) What are the various types of drive systems employed in CNC machines?

 (7 marks)

 d) Write a part program for the following component on a CNC lathe. Assume necessary data.

 (10 marks)

OR

6. a) What purpose do transducers serve in an NC system? (3 marks)

 b) Write short note on Automatic Tool Changer? (5 marks)

 c) What are the various safety & guard devices employed in CNC? (7 marks)

 d) Explain ISO designation of CNC tooling? (10 marks)

7.a) Briefly explain the concept of group technology? (3 marks)

 b) How the concept of group technology employed to computer aided process planning (5 marks)

 c) Write note on machinability data systems? (7 marks)

 d) Explain generative type process planning technique with the aid of a flowchart.

 (10 marks)

OR

8.a) List the benefits of CAPP. (3 marks)

 b) What you meant by computer generated time standards. ? (5 marks)

 c) Explain steady state optimal control strategy in process control. (7 marks)

 d) Explain direct digital control in computer aided process control. (10 marks)