

Reg. No. :

**A 1462**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2008.

Sixth Semester

Mechanical Engineering

ME 338 — COMPUTER AIDED MANUFACTURING

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define Part family.
2. What do you mean by PFA?
3. What are the functions of CNC?
4. Differentiate between  $2\frac{1}{2}$  axes and 3 axes CNC machines.
5. Why is a gear box incorporated in the main spindle drive of CNC machine?
6. What are the various tool holding devices?
7. Mention the difference between GOTO and GO/TO commands.
8. How do you provide cutter diameter compensation?
9. List out the inputs of MRP.
10. What is tolerance modeling?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the OPTIZ coding structure and mention the significance of digits. (10)  
(ii) Describe the principle of Stereolithography. (6)

Or

- (b) (i) What is CAPP? Explain generative approach used in the development of a CAPP system. (10)  
(ii) Write short notes on Concurrent Engineering. (6)
12. (a) (i) What is DNC ? Explain their types with neat sketches. (10)  
(ii) Discuss about the functions of CNC controllers. (6)

Or

- (b) (i) Explain the working principle of incremental open-loop control system. (8)  
(ii) Give a brief description of data transmission method between the touch trigger probe and the CNC controller. (8)
13. (a) (i) Explain the various types of slide ways of CNC machines with suitable sketches. (8)  
(ii) What is ATC ? Explain any one in details. (8)

Or

- (b) (i) Discuss about the presetting of tool and qualified tool. (8)  
(ii) With a neat sketch, explain any one rotary position control feed back device. (8)
14. (a) (i) Explain the following FANUC codes : (4 × 1½ = 6)  
(1) G 27  
(2) G 43  
(3) M 06  
(4) M 98  
(ii) Write a program for thread cutting operation for M 37 X 3 double start left hand thread. (10)

Or

- (b) Write an APT program to mill a slot of 15 mm width in a plate of  $300 \times 250 \text{ mm}^2$  starting from the point X 20, Y 20 towards right direction for a length of 50 mm and an arc of 10 mm CCW and then extending towards vertical distance of 70 mm and then returning to the origin. (X 20, Y 20). Centre of arc is X 70, Y 30. (16)
15. (a) (i) Explain the various functions of product data management system. (8)
- (ii) Write short notes on the following :
- (1) JIT (4)
- (2) Engineering challenges in CAD/CAM. (4)
- Or
- (b) (i) Explain the three phases of shop floor control with a neat block diagram. (10)
- (ii) Write short notes on Scheduling. (6)
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