G 1083　　　　　　　　(Pages : 3)　　　　　Reg. No...................................

Name.......................................

B.TECH. DEGREE EXAMINATION, MAY 2016

Sixth Semester

Branch : Mechanical Engineering/Automobile Engineering

COMPUTER AIDED DESIGN AND MANUFACTURING (MU)

(Old Scheme—Prior to 2010 Admissions)

[Supplementary/Mercy Chance]

Time : Three Hours　　　　　　　　　　　　　　　　　　　Maximum : 100 Marks

Answer **all** *questions.*
Each question carries 20 *marks.*

1. (a) Define CAD. Explain the reasons for adopting CAD in an engineering organization.

　 (b) Explain about the input devices used in CAD/CAM.

　 (c) Write Bressnham's circle drawing algorithm.

　 (d) Comment on various CAD software packages.
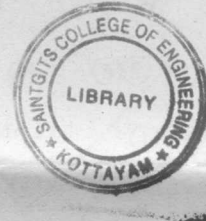
(4 × 5 = 20 marks)

Or

2. (a) Explain the concept computer integrated manufacturing (CIM).

　 (b) Differentiate between wire frame modeling, surface modeling and solid modeling.

　 (c) Briefly explain the various graphic transformations required for manipulating the geometric information.

　 (d) Briefly describes the types of storage devices used in CAD/CAM.

(4 × 5 = 20 marks)

3. (a) Explain about the drive systems in numerical control (NC).

　 (b) What are the advantages and disadvantages of numerical control system ?

　 (c) In what way PLC, Microcomputer and Microcontroller are different than each other ? Suggest their specific applications in manufacturing.

　 (d) Explain open loop and closed loop control in NC system.

(4 × 5 = 20 marks)

Or

Turn over

4. (a) Explain CNC and DNC systems. What are the advantages of these systems ?

   (b) Explain the basic types of motion controls in NC system.

   (c) Write a short note about DDA integrator and interpolator.

   (d) Briefly describes the feedback devices in NC.

   (4 × 5 = 20 marks)

5. (a) List any *five* G codes used in CNC programming with their functions.

   (b) What is meant by manual part programming ? What are its disadvantages ?

   (c) Explain the different statements used in APT language.

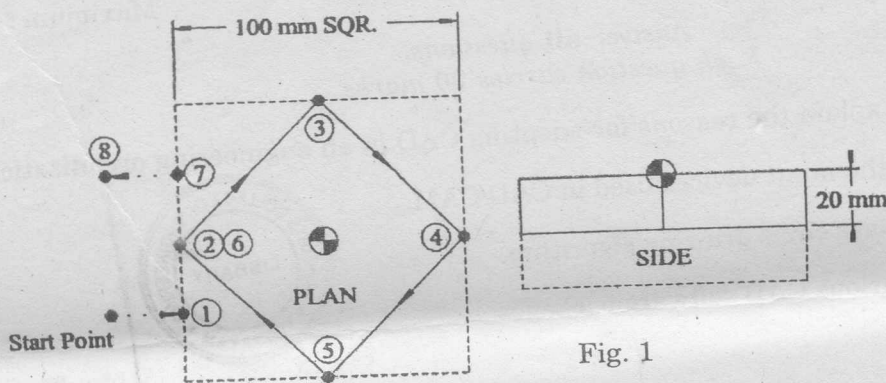   (d) Write the CNC program for the work-part shown in Fig. 1.

Fig. 1

(4 × 5 = 20 marks)

Or

6. (a) Explain preparatory and miscellaneous functions with examples.

   (b) What is meant by cutter radius compensation ?

   (c) Explain about computer aided part programming and its advantages.

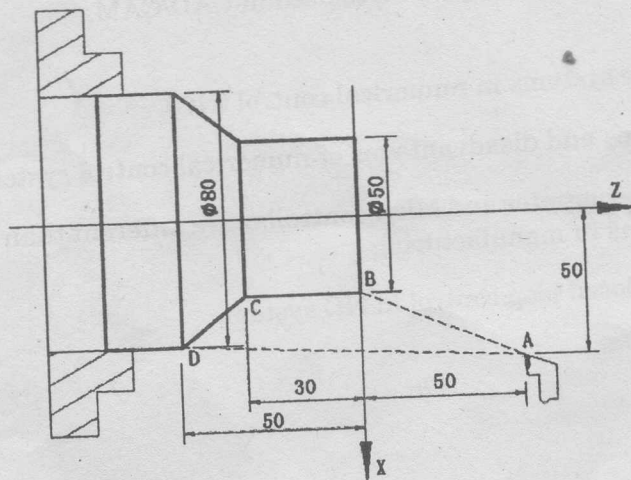   (d) Write the CNC program for the work-part shown in Fig. 2 :

Fig. 2   (All dimensions are in mm)
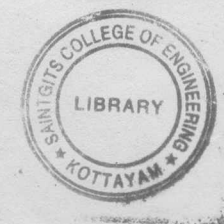
(4 × 5 = 20 marks)

7. (a) What are the basis code structures used in group technology applications ?

(b) Differentiate between traditional and automated process planning.

(c) What is meant by part family and machine cell ?

(d) Explain about generative process planning system.

(4 × 5 = 20 marks)

Or

8. (a) What are the benefits of CAPP ?

(b) Discuss about various process planning software.

(c) With block diagram, briefly explain retrieval CAPP system.

(d) What is the role of artificial intelligence in process planning ?

(4 × 5 = 20 marks)

9. (a) Explain about end effectors in robotics.

(b) Write a short note on robotic programming languages.

(c) Briefly explain about different robot configuration.

(d) Explain about intelligent robot.

(4 × 5 = 20 marks)

Or

10. (a) Explain about the sensors used in robotics.

(b) What are the applications areas for industrial robots ?

(c) Explain the technical features of robots :
    (i) Precision of movement ; (ii) Weight carrying capacity.

(d) Describe about the vision system of Robots.

(4 × 5 = 20 marks)