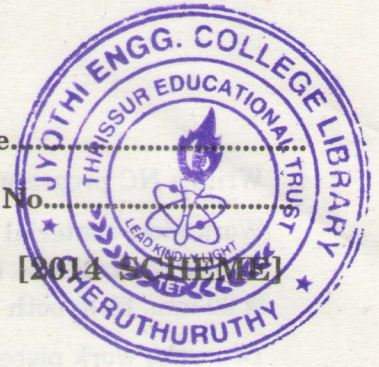C 30122

(Pages : 2)

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

Reg. No...........................

SEVENTH SEMESTER B.TECH. (ENGINEERING) DEGREE [2014 SCHEME] EXAMINATION, NOVEMBER 2017

Mechanical Engineering

ME 14 703—COMPUTER INTEGRATED MANUFACTURING

Time : Three Hours   Maximum : 100 Marks

Part A

*Answer any **eight** questions.*
Each question carries 5 marks.

1. What is the principle of numerical control ? Briefly discuss.

2. Name any four feedback devices used in NC machines. What are their functions ?

3. State any two geometry and motion statements used in APT language.

4. Give any five preparatory codes available NC part programming.

5. What are the functions of database management in CIM ?

6. State the part design asttributes used in part classification and coding system.

7. What are the attributes required for automatic storage system ?

8. Differentiate FMC and FMS.

9. What is work volume ? Draw the work volume cartesian co-ordinate robot.

10. What are the types of sensors used in robotic system ?

(8 × 5 = 40 marks)

Part B

*Answer **all** question.*
Each question carries 15 marks.

Module I

1. Describe the constructional features of NC machine tools with illustrations.

Or

2. How do you classify NC machine tools ? Briefly discuss each with neat sketches.

Module II

3. (a) What is computer assisted part programming ? Describe the steps in computer assisted part programming.

(8 marks)

(b) Enumerate the geometric definitions available in APT with illustrations.   (7 marks)

Or

Turn over

4. Write a NC program using manual part programming method for the following conditions :

Work piece material : Mild steel ; Plate size : 100 mm. × 120 mm. × 10 mm. operations : Drilling 4 holes of size 8 mm. dia. Location of holes : four corners of the plate and the center of the each hole is 30 mm. from both the edges.

Draw the work piece and show the locations of hole.

Assume data required if any.

Module III

5. (a) Explain the operational features of ASRS in CIM environment.   (8 marks)

   (b) Write short notes on : (i) Vehicle guidance ; (ii) Safety in vehicle management.   (7 marks)

Or

6. Describe various types of part classification antd coding systems. Compare and contrast their limitations, applications and advantages.

Module IV

7. (a) Describe the features of work stations used in FMS.   (6 marks)

   (b) Describe various types of layout configurations of FMS. Compare and contrast their benefits and imitations.

                                                                                        (9 marks)

Or

8. (a) How do you justify the application of robots in Indian industries ?   (4 marks)

   (b) Describe various types of actuating mechanism used in robots. Explain the working principle of any one type with neat sketches.

                                                                                        (11 marks)

                                                                          [4 × 15 = 60 marks]