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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

Fifth Semester, B.E. -Industrial and Production Engineering

Semester End Examination; Dec. - 2014

CAD / CAM

Time: 3 hrs   *Max. Marks: 100*

*Note: Answer any **FIVE** full questions, selecting at least **TWO** full questions from each part. .*

PART - A

1. a. Explain with the help of a block diagram computerized product cycle for a medium scale industry.   10

   b. Explain the concepts of various storage devices used in a workstation.   10

2. a. Explain the functions of a graphics package.   6

   b. Explain the following exchange extension files (i) IGES   (ii) STEP.   6

   c. A line is defined by its end points (4, 6) and (8, 12) in 2 dimensional graphics system. Express the line in matrix notation and perform the following transformations.

      i) Translate the line by 3 units in X direction and 2 units in Y direction.

      ii) Scale the original line by a scaling factor of 3.   8

3. a. Explain with the help of a block diagram the components of CNC machine and state its advantages and limitations.   10

   b. Sketch and explain the concepts of DNC and discuss its functions.   10

4. a. Sketch and explain the nomenclature of turning tool indicating its angles and tool geometry.   8

   b. Sketch and explain a ATC for a horizontal machining centre.   8

   c. Discuss briefly about CNC turning centre.   4

PART - B

5. a. Explain any two of the following concepts of part programming,

      i) Fixed zero and floating zero

      ii) Right hand thumb rule and axis representation.

      iii) Absolute and Incremental dimensioning.   10

   b. Write the CNC part programming for the component shown in the Fig. 5(b) for the drilling operations only. Take the depth of cut as 0.5 mm and total depth 10 mm.   10
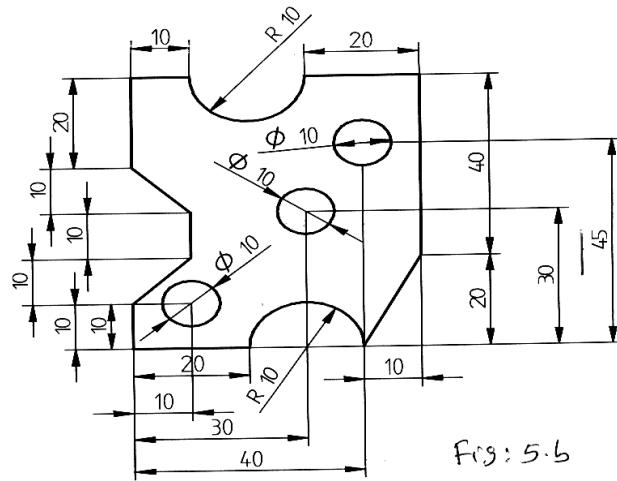
Fig: 5.6

6 a. Explain the concept of group technology with suitable example. 10

  b. What do you mean by FMS? Explain the concept with a suitable block diagram and state its advantages with the conventional CNC machine. 10

7 a What are the main statements used in APT programming? Explain with examples. 10

  b. Write an APT program to mill the profile of the component shown in the Fig. 7.b. the data given are post processor : MACHIN / MILL

  Spindle Speed : 1200 rpm

  tolerance : 0.02 mm

  Cutter diameter : 20 mm

  Feed rate : 75 mm / min

  thickness : 15 mm

  cutter location – 0, 0, 0. 10

All Dimensions in mm.
Assume missing data.
Fig. 7.6
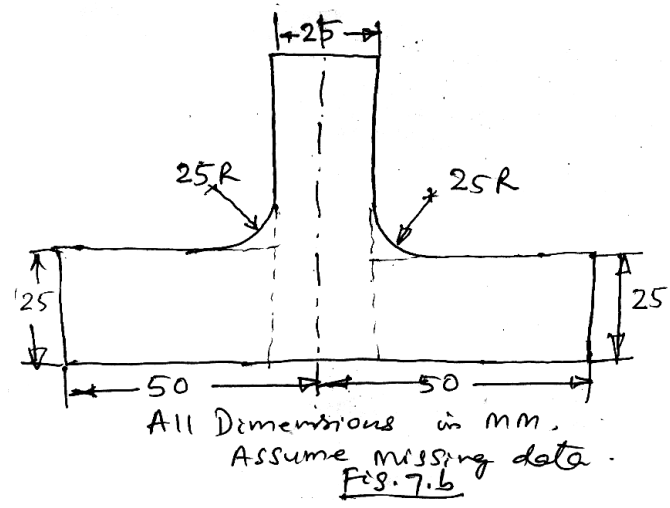
8 a. Sketch and explain any 2 robot configuration with its use. 10

  b. Explain the following concepts of Robots. 10

    i) Robot sensor   ii) Robot applications

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