College of Engineering, Pune

End Semester Examination

Subject : ME402 CAD/CAM   **Year:** B.Tech.(Mechanical)

Academic Year: 2013-14   **Semester:** I

Duration: 3 Hrs.   **Max. Marks:** 60

<u>Instructions:</u> 1. Solve **ALL** questions

2. Make necessary assumptions and assume suitable data wherever required.

Q1. a Explain following G codes with suitable example, used for CNC Machining center- **8**
    i. G02,G03   ii. G17, G18 , G19

  b. Explain constructional features of a typical CNC machining center in detail **7**

OR

  b. What is importance of Tool length and Tool Radius compensation? How is tool length compensation specified in a machining centre? **7**

Q.2.a Explain various types Analytic and Synthetic surfaces used in CAD/CAM system **8**

  b. What is need of neutral file format? Differentiate between direct and indirect translator. List the various data exchange formats currently in use. **7**

Q.3a. Differentiate between Parallel projection and perspective projection. Explain the different techniques used to obtain two-point and three- point perspective projections from single point perspective projection. **8**

  b. Perform a 30 degree rotation of a triangle ABC with vertices A(1,1), B(5,2) and C(3,3). Calculate the new position of a triangle if it is rotated (a) about Origin and (b) about point (2,2) **7**

Q.4.a Following component is to be made using CNC Turning Center equipped with FANUC controller and having Turret on rear side. Using Canned Cycle (G71) prepare NC part program in absolute and diametric programming mode. Assume spindle speed 500RPM and feed 1.5mm/min. **8**
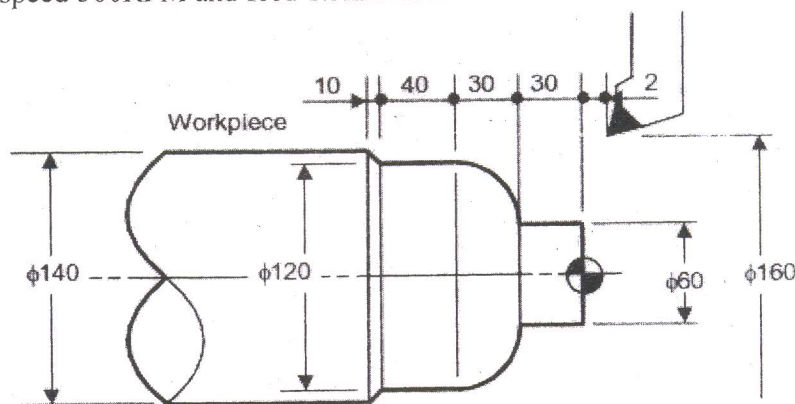
  b. A parametric Bezier cubic curve passes through the points (0,0), (2,4), (4,3), (5, -2) which are parametrized at t = 0, ¼, ¾, and 1, respectively. Determine the geometric coefficient matrix and the slope of the curve when t = 0.5. **7**