Total No. of Questions : 10]

SEAT No. :

P2978

[Total No. of Pages : 3

[5154]-532
B.E. (Mechanical Engineering)
CAD/CAM and Automation
(2012 Course) (End Semester) (402042)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Answer five questions.***
2) ***Figures to the right indicate full marks.***
3) ***Use of electronic calculator allowed.***
4) ***Assume suitable data.***

Q1) A line is drawn with vertices A(4,4) B(15,10) has undergone following transformation in sequence. **[10]**

a) Rotation through 45° anticlockwise

b) Scaling by 1.5 units.

c) Reflection about x axis.

Find concatenated matrix and new co-ordinates of triangle.

OR

Q2) a) Write equation of line having P_1 [3,5,8] and P_2 [6,4,3] and find tangent vectors and points on line at μ = 0.25, 0.5, 0.75. **[5]**

b) Write short notes on Hermite cubic spline curve with neat sketch. **[5]**

P.T.O.

Q3) a) Explain feature based modelling. **[4]**

b) Find displacement and reaction force for cluster of springs as shown in fig.1 **[6]**

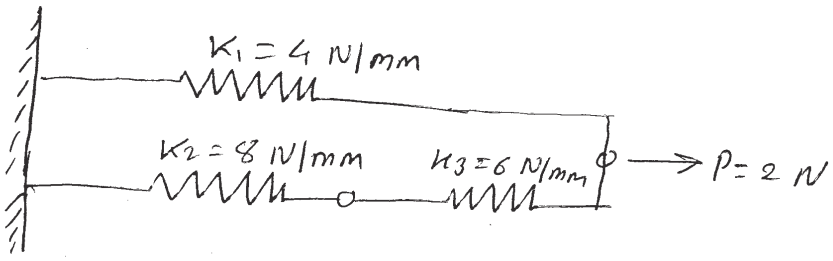


Figure 1

OR

Q4) Truss element is as shown in figure 2. Determine, deflection, stresses and reaction force in element. **[10]**

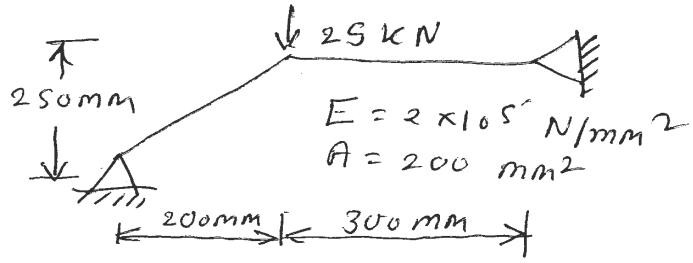
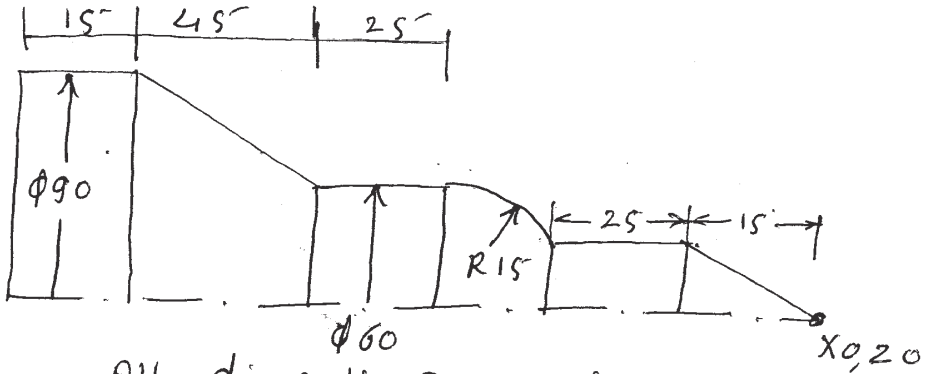


Figure 2

Q5) a) Explain canned cycle for parting and threading for turned components.**[6]**

b) Write CNC port program for roughing and finishing using canned cycle for turned components as shown in figure 3. Assume suitable data **[12]**



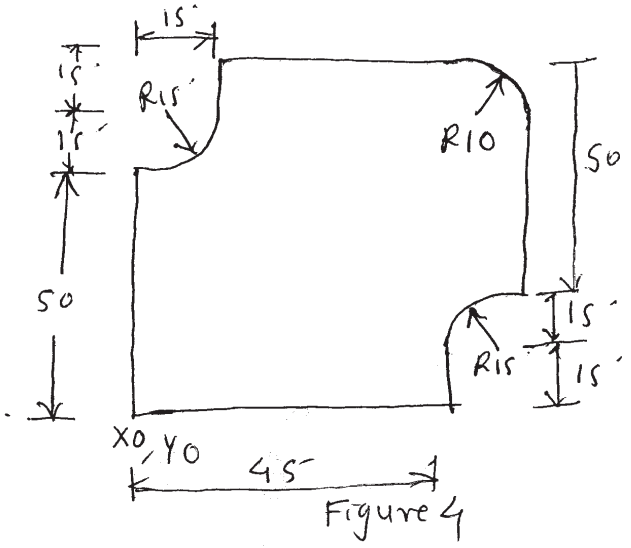
All dimensions are in mm

Figure 3

OR

Q6) a) Explain concept of sub programming. **[6]**

b) Write CNC program for the component shown in figure 4. **[12]**



Q7) a) Explain basic steps in R.P. process. **[6]**

b) Explain fused deposite manufacturing R.P. process. **[10]**

OR

Q8) a) Explain laminated object manufacturing (LOM) modelling method of R.P. **[12]**

b) Explain of R.P. Aerospace Industry. **[4]**

Q9) a) Explain various joints used in robots with neat sketch. **[8]**

b) Explain the vacuum gripper with neat sketch and its applications. **[8]**

OR

Q10)a) Explain Automation strategies. **[8]**

b) Explain Group Technology layout and advantages over process layout. **[8]**

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