Total No. of Questions : 10] SEAT No. :

P3044 [Total No. of Pages : 3

[5354]-532
B.E. (Mechanical Engineering)
CAD / CAM & AUTOMATION
(2012 Pattern) (End Semester)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:-

1) ***Answer Q.No. 1 OR Q.No.2, Q.No. 3 OR Q.No. 4, and Q.No. 5 OR Q.No.6, Q.No. 7 OR Q.No. 8, and Q.No. 9 OR Q.No. 10.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Use of Electronic pocket Calculator is allowed.***
5) ***Assume Suitable data, if necessary and mention it clearly.***

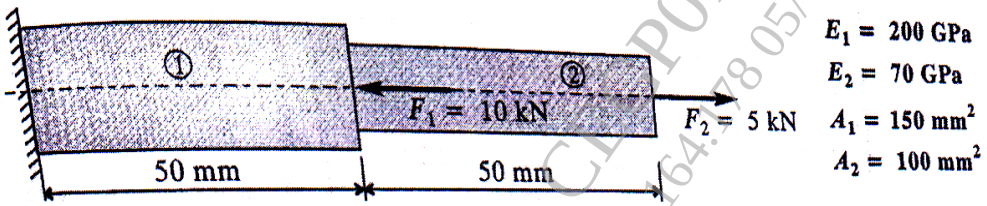
Q1) a) Explain various stages of Computer Aided Design. **[6]**

b) A triangle ABCD has vertices A (l, 1), B (3, 1), C (3, 3) and D (l, 3). Is to be transformed to half of its size ,still retaining the square size at same position if the corners of the coordinates of the square are (2, 2). Find the composite transformation matrix and new coordinate points of the square. **[6]**

OR

Q2) a) Write short notes on Synthetic Curves. **[6]**

b) Determine the nodal displacements for the stepped bar shown in Figure1 **[6]**



P.T.O.

Q3) For the two bar truss shown in Figure 2 determine the nodal displacement, stresses in each element and reaction at support take E =2 × 10^5 N/mm^2 and A=200 mm^2. **[8]**

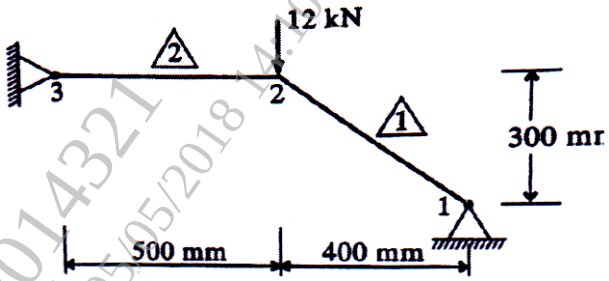


Fig. 2

OR

Q4) Determine stresses in stepped bar problem shown in Figure 3 by considering thermal effects. **[8]**

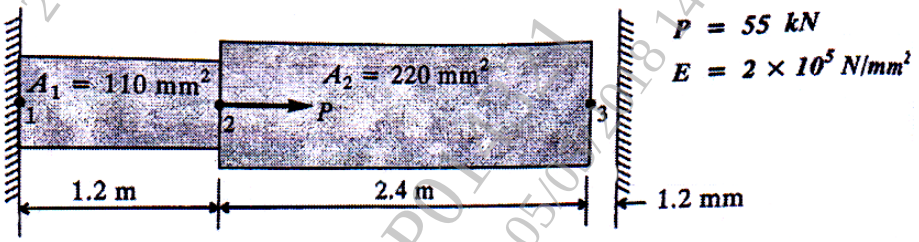


Fig. 3

Q5) a) Explain the tool length and tool radius compensation with suitable example. **[6]**

b) Wtite NC Part program shown in Fig. 4 and Assume suitable data **[12]**

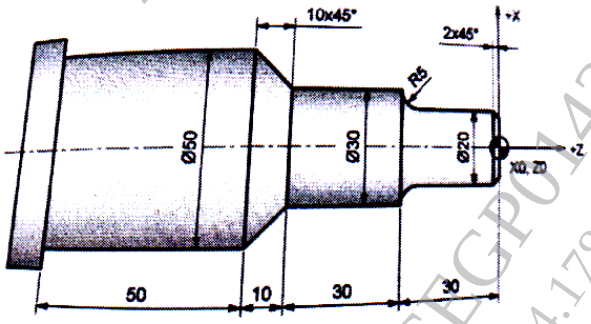


Fig. 4 Q. No.5 (b)

OR

Q6) a) Explain NC procedure **[6]**

b) Develop a part program for the part shown in Fig. 5. The part is 1.5 mm thick use end mill cutter diameter 10 mm cutting speed 700RPM and feed 100 mm/min **[12]**

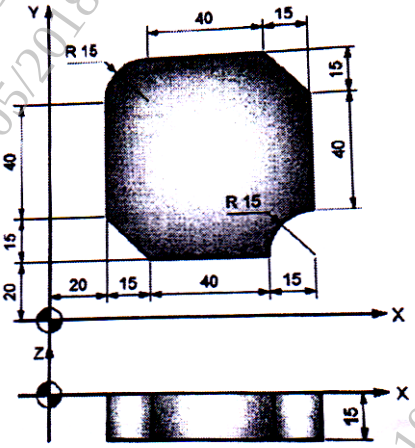


Fig.5 Q. No. 6 (b)

Q7) a) Explain the stereolithography RP process in detailwith neat sketch. State its limitations **[8]**

b) Explain Rapid Tooling and its advantages. **[8]**

OR

Q8) a) Explain the 3D printing process in detail with neat sketch. State its advantages. **[8]**

b) Explain Fused deposition Modeling and state its applications in industry. **[8]**

Q9) a) Enlist different types of Robot grippers and Explain any one in detail. **[8]**

b) Explain automation strategies in detail. **[8]**

OR

Q10)a) Explain the basic robot configuration in detail. **[8]**

b) Write short notes in MRP and CIM. **[8]**