Total No. of Questions : 10]	SEAT No. :
P1955	[Total No. of Pages : 3

[5059]-532

B.E. (Mechanical Engineering) CAD/CAM AND 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; Q. No. 5 or Q. No. 6; Q. No. 7 or Q. No. 8; Q. No. 9 or Q. No. 10.
- 2) Figures to the right indicate full marks.
- 3) Use of Electronic pocket calculator is allowed.
- 4) Assume suitable data, if necessary.
- Q1) A triangle with vertices P (2, 2) Q (8, 2) and R (6,6) has undergone following transformation in sequence. [10]
 - a) Rotation through 45° anticlockwise.
 - b) Scaling by 2 times
 - c) Reflection about x axis

Find the concatenated matrix and new coordinate of triangle.

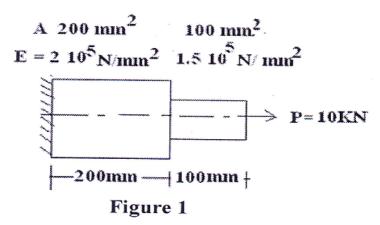
OR

Q2) a) Explain Isometric Projections.

- [4]
- b) Write a short note on Bezier surface with neat sketch.
- [6]
- Q3) a) Compare CSG and B-rep technique of solid modeling with neat sketch.[6]
 - b) Explain penalty approach of solving FEM problem. [4]

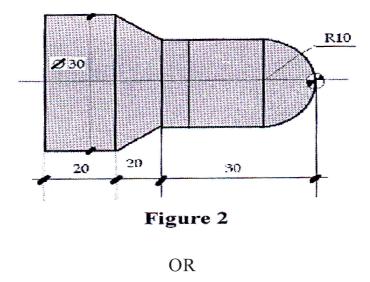
OR

Q4) An axial step bar is shown in figure 1. Determine deflection and stresses in element and reaction force. [10]



- Q5) a) Explain the linear, circular CW and circular CCW interpolation with G code word address format for above interpolations.[6]
 - b) Write CNC part program for roughing and finishing using canned cycle for turned component as shown in figure. Assume Suitable cutting data.

 [12]



- **Q6)** a) Explain G28, G04, G40 and G41 code in part programming. [6]
 - b) Explain canned cycle for drilling and tapping in proper word address format. [6]
 - c) Explain the incremental and absolute method of program with G code. [6]

Q7)	a)	Classify various RP process.	6]	
	b)	Explain 3-D printing process. [1	0]	
OR				
Q8)	a)	Explain Fused Deposition Modeling method of rapid prototyping wi advantages and limitation. [1		
	b)	List application RP.	4]	
Q9)	a)	Draw work envelope for Robot configuration. Explain the Spheric Configuration Robot with neat sketch. [1]		
	b)	Explain Vacuum gripper with figure.	6]	
OR				
Q10)	a)	Explain the Group Technology layout in comparison to Process layou	ut. 8]	
	b)	Explain various Elements of FMS.	8]	

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