

Roll No. ....

**22234**

**M. Tech. 2nd Sem. Mechanical Engg.  
(Machine Design) (Elective-I)**

**Examination – December, 2014**

**COMPUTER AIDED DESIGN**

**Paper : M-838**

*Time : Three hours ] [ Maximum Marks : 100*

*Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.*

**Note :** Attempt any *five* questions.

1. (a) With help of a block diagram, explain the different phase of computer aided design process. 10
- (b) Discuss the role of software in CAD application. 10
2. (a) Explain different types of basic transformation. 10
- (b) Find the transformed coordinates when a square [(1,1), (2,1), (1,2) and (2,2)] is rotated by 90° anticlockwise about a line passing through one of its vertex (1,1) and parallel to x-axis ? 10

3. (a) Calculate the points on Bezier curve at  $u = 0.3$  and  $u = 0.8$ . The Bezier curve is defined by the following control points : (5,5), (6,8), (8,10), (10,8), (12,6), (15,10) and (18,12) 10
- (b) What are B spline curve ? List the advantages over Bezier curve. 10
4. (a) What is CGS tree ? Explain their importance in the construction of CGS solid model. 10
- (b) Explain the different methods of solid modeling using sweeping with the help of neat sketches. 10
5. Discuss in detail the various graphics standard ? Explain PDES and IGES. 20
6. Discuss the parametric representation of Bezier curves. Also describe its engineering application. 20
7. (a) Discuss the parts modeling and its representation. 10
- (b) Define surface entities and derives the parametric equations of the four analytical surface models ? 10
8. Write shorts notes on any *three* : 7,7,6
- (i) NURBS
- (ii) Buffer algorithm
- (iii) Watkinson scan line algorithm
- (iv) 3D scaling