01119

BACHELOR OF TECHNOLOGY IN MECHANICAL ENGINEERING (COMPUTER INTEGRATED MANUFACTURING)

Term-End Examination

June, 2013

BME-002 : COMPUTER AIDED DESIGN

Time : 3 hours   *Maximum Marks : 70*

Note : *Answer **any seven** questions. Use of scientific calculator is allowed. Draw neat sketches wherever instructed to support your answer in theory and numerical questions.*

1. (a) With the help of suitable sketch describe the major components of Canthode Ray Tube (CRT) display.   5

   (b) Differentiate between random and raster scan display.   5

2. Explain the principle of LCD display. What are the various technologies used in LCD devices?   10

3. (a) Find the transformation that rotates an object point p (x, y))$\theta°$ about a fixed centre of rotation(l,m).   5

   (b) With the help of suitable sketch explain 3-dimensional scaling with respect to origin.   5

4. Explain Z-Buffer Algorithm and write a program **10** to implement the Z buffer to generate shaded images.

5. (a) Why parametric representation of curves is **5** better ?
   (b) State the difference between exact fit and **5** best fit polynomial.

6. Why synthetic curves are used for many **10** engineering applications ? Campare B-splines and Bezier curves.

7. Fit a Bezier curve with the following control points **10** $P_0(1,1)$, $P_2(2,2)$, $P_3(3,1)$, and P_4 (4,0).

8. Find the equivalent bicubic formulation of an open **10** cubic B-spline surface.

9. Differentiate between surface modeling and wire **10** frame modeling.

10. Explain salient features of the following **10** standards.
    (a) IGES
    (b) PDDI
    (c) PDES
    (d) STEP