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BME-002

01359

BACHELOR OF TECHNOLOGY IN MECHANICAL ENGINEERING (COMPUTER INTEGRATED MANUFACTURING)

Term-End Examination

December, 2010

BME-002 : COMPUTER AIDED DESIGN

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any seven questions. Use of calculator is allowed. Drawing of the diagrams is compulsory wherever instructed in the numerical questions.*

1. (a) Differentiate between random and raster scan display. 5

   (b) Define the following terms related to CRT monitors: 5

   (i) Refresh rate

   (ii) Deflection system , and

   (iii) Focusing system.

2. (a) Explain the principle of LCD display. What are the various technologies used in the LCD devices. 5

   (b) What is persistence ? What is the function of electron gun in a CRT ? 5

3. A triangle ABC which has its points A [3 -1], B [4 1] and C [2 1] is rotated by 90^0 about the origin in counter clockwise direction. Calculate the position vectors of the rotated triangle. Show with the help of a neat diagram the triangle ABC before and after transformations /(Rotation). **10**

4. Find the transformation that rotates point P (x,y), θ^0 about a fixed centre of rotation (l, m). **10**

5. With the help of neat sketches explain Gourand Shading principle and its application. **10**

6. Explain parametric and non-parametric representation of curves and compare parametric and non-parametric representations of a circle. **10**

7. For the position vectors P_1[1 2] and P_2[4 3], determine the parametric representation of the line segment between them. Also determine the slope and tangent vector of the line segment. **10**

8. Calculate the mid-point of Hermite Cubic curve defined by $V_0(0) = [1\ 1]$, $V_1(1) = [6\ 5]$, $V'_0(0) = [0\ 4]$ and $V'_1(1)=[4\ 0]$. **10**

9. Discuss methods for controlling the shapes of Bezier curve for varying the control points. **10**

10. Explain salient features of the following standards: **2.5x4=10**

(i) IGES (ii) PDDI
(iii) PDES (iv) STEP