| BME-002 |

B.Tech. MECHANICAL ENGINEERING (COMPUTER INTEGRATED MANUFACTURING)

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Term-End Examination

June, 2014

BME-002 : COMPUTER AIDED DESIGN

Time : 3 hours   *Maximum Marks : 70*

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

1. (a) What do you understand by the term Rasterization in a Raster Scan display ? What is the function of frame buffer ?

    (b) Define any **two** of the following terms related to LCD :

    (i) TFT display

    (ii) Dual scanning

    (iii) Active and passive matrix   *5+5*

2. (a) What are the different types of input devices ? Explain any one of them.

(b) Write briefly on any *one* of the following :

  (i) Light pen as a locating device and its limitations

  (ii) Digitizer as a locating device

  (iii) Resolution *5+5*

3. A triangle ABC, which has three points A[6 –2], B[7 2] and C[5 2] is rotated by 90° about the origin in counter-clockwise direction. Calculate the position vectors of the rotated triangle. Draw the original and final diagrams. *10*

4. Briefly describe the HSV colour model and HLS colour model. *10*

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

6. (a) Derive the Bezier equation for a curve having four control points.

(b) Construct a Bezier curve and obtain points at t = 0·5.

$P_0(1, 3)$ $P_1(3, 5)$ $P_2(4, 2)$ $P_3(5, 6)$ *5+5*

7. Discuss Tensor product form of a Coons patch and its properties. *10*

8. Explain briefly Boundary representation method with a suitable example. *10*

9. Explain briefly Constructive solid geometry for representation of solids. *10*

10. What are the different types of Software Interfaces ? What are the requirements for Standard Interfaces ? *10*