

**B.Tech. MECHANICAL ENGINEERING
(COMPUTER INTEGRATED
MANUFACTURING)**

Term-End Examination

June, 2017

00934

BME-002 : COMPUTER AIDED DESIGN

Time : 3 hours

Maximum Marks : 70

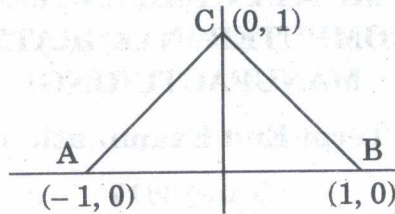
Note : *Attempt any five questions. Use of scientific calculator is allowed.*

1. Explain the following types of displays in detail : 14
 - (a) Random Scan Display
 - (b) Raster Scan Display

2. Explain the following : 14
 - (a) Rendering
 - (b) Shading and Colouring
 - (c) Isometric Projection
 - (d) Hidden Line Removal

3. (a) Explain the principles of Gouraud and Phong shading. 10
- (b) What is meant by primary colours and complementary colours ? 4

4. (a) Rotate the given triangle about the vertex B(1, 0) by 45° in clockwise direction.



- (b) Scale the original triangle by two times its size with respect to its centroid. 14
5. Develop the equation of a Bezier curve, find the points on the curve for $t = 0, \frac{1}{4}, \frac{1}{2}, \frac{3}{4}$ and 1. Plot the curve for the following data : 14
- The co-ordinates of the four control points are given by
- $V_0(0, 0, 0)$
 - $V_1(0, 1, 0)$
 - $V_2(3, 1, 0)$
 - $V_3(3, 0, 0)$
6. Discuss the method of obtaining a perspective view of an object. Illustrate with an example of cube or cylinder. 14
7. Explain with a block diagram, the data exchange in CAD/CAM during product cycle. 14

8. Write short notes on any **four** of the following :

$$4 \times 3 \frac{1}{2} = 14$$

- (a) CMY Model
 - (b) Isometric Projections in Computer Graphics
 - (c) Visual Realism
 - (d) Digitizers
 - (e) Cathode Ray Tube Technology
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