

**B.TECH  
(SEM V) THEORY EXAMINATION 2022-23  
COMPUTER GRAPHICS**

**Time: 3 Hours****Total Marks: 100****Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A****1. Attempt all questions in brief. 2 x 10 = 20**

- (a) What are the components of computer graphics?
- (b) Explain aliasing and ant aliasing.
- (c) Explain curve clipping and text clipping with examples.
- (d) Why are Homogeneous co-ordinates used for transformation computations in computer graphics?
- (e) What do you mean transformation in computer graphics?
- (f) Explain 3-D geometric primitives.
- (g) Explain important terms used in projection.
- (h) What is the difference between interpolation spline and approximation spline?
- (i) What do you understand by quadratic surfaces? Explain Sphere.
- (j) Explain different type of coherence.

**SECTION B****2. Attempt any three of the following: 10x3 = 30**

- (a) What is the difference between Bresenham and DDA Line drawing algorithms?
- (b) Describe Cohen Sutherland line Clipping Algorithm what is its limitations?
- (c) Explain 3-dimensional clipping? What are the problems that are encountered in perspective projections?
- (d) Discuss relative advantages and disadvantages of Gouraud Shading and Phong Shading.
- (e) What is hidden surface detection? Explain Depth buffer or Z-buffer algorithm.

**SECTION C****3. Attempt any one part of the following: 10x1 = 10**

- (a) What do you understand by shadow mask CRT? Give its advantages and disadvantages.
- (b) Obtain the mirror reflection of the triangle formed by the vertices A (0, 3), B (2,0) and C(3,2) about the line passing through the points (1,3) and (-1, -1).

4. Attempt any *one* part of the following: 10x1 = 10

- (a) Describe Weiler Atherton Polygon Clipping Algorithm with example.
- (b) Given a clipping window A(20,20),B(60,20), C(60,40),D(20,40).Using Sutherland Cohen Algorithm find the visible portion of line segment joining the points P(40,80),Q(120,30).

5. Attempt any *one* part of the following: 10x1 = 10

- (a) What do you mean by projection? Differentiate between parallel projection and perspective projection with the help of diagram.
- (b) Explain 3-dimensional clipping? What are the problems that are encountered in perspective projections?

6. Attempt any *one* part of the following: 10x1 = 10

- (a) Explain B-spline curves. Also describe its salient properties.
- (b) What is the role of Bezier curves in designing curves and surfaces? Discuss its properties.

7. Attempt any *one* part of the following: 10x1 = 10

- (a) What is back face removal algorithm? Describe the limitations of back face algorithm.
- (b) Describe the Phong's illumination model.