## Code No: MC1625/R16

## MCA II Semester Regular Examinations, May-2017 COMPUTER GRAPHICS

Time: 3 Hours
Max. Marks: 60
Answer Any FIVE Questions
All Questions Carry Equal Marks

1. a Compare and contrast between raster-scan and random scan systems.
b Discuss the functioning of different graphical input devices.
2. a Describe the DDA algorithm for scan converting a line whose slope is between $45^{0}$ and $-45^{0}$.
b List the basic transformations which cause the physical distortion in the transformed object.
3. a Explain the approaches followed in different line clipping algorithms.
b Determine whether the vector joining the points A $(5,7)$, B $(10,8)$ intersects the line segment $\mathrm{P}(1,4) \mathrm{Q}(20,4)$ using the Sutherland-Hodgeman algorithm. If intersects, find the coordinates of intersection point.
4. a What is the organization of control points followed in Bezier's method to ensure second order continuity?
b Demonstrate that B-spline curve follows local control.
5. a Derive the matrix form for perspective projection transformation using 3D homogenous representation.
b Discuss the significance of edge coherence in depth-buffer algorithm.
6. a Given points $\mathrm{P}(1,2, \theta), \mathrm{P}(3,6,20) \mathrm{P}(2,4,6)$ and a view point $\mathrm{C}(0,0,-10)$, determine which points obscure the others when viewed from C .
b Explain the procedure followed for back face detection.
7. a Write an algorithm for generating a quad tree representation for the visible surfaces of an object by applying the area subdivision tests to determine the values of the quad tree elements.
b Discuss the characteristics of key-frame animation.
8. a What is the mechanism followed for tracking live action in animated scenes?
b Explain the graphical languages followed to achieve animation.
