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Roll No. :

322655(22)

B. E. (Sixth Semester) Examination, April-May 2020

(New Scheme)

(CSE Branch)

COMPUTER GRAPHICS

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all units. Part (a) of each unit is compulsory carry 2 marks. Attempt any 2 part from (b), (c) and (d) carry 7 marks.

Unit - I

1. (a) What is persistence? Explain use of this quality of phosphorus.
- (b) Explain Beam Penetration method of achieve color picture, using neat and clean diagram. How all

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possible colors can be achieved in this method explain in detail.

- (c) Explain the working of CRT monitor. Explain the method to draw and store picture in Raster and Random system.
- (d) Consider the 3 different Raster system with resolution 640×640 , 1280×1024 and 2560×2048 . What size of Frame buffer (In Byte) is needed for each of these system to store 12 bits per pixel.

Unit - II

- 2. (a) What do you mean by aliasing?
- (b) Explain DDA algorithm for drawing line with example.
- (c) Explain Midpoint circle drawing algorithm. Using same algorithm draw the circle having center at (5, 5) and radius 5 cm.
- (d) Explain following area filling algorithm with their application area for which they are best suited.
 - Scan line method
 - Boundary fill method (8 connected)

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Unit - III

- 3. (a) Explain Reflection transformation.
- (b) What is Transformation? Explain following transformations also write homogeneous matrix for them :
 - Rotation
 - Translations
 - Scaling
- (c) Define the term 'Window' and 'Viewport'. Also explain window to view port transformation pipeline. Illustrate the window to viewport mapping for a point at position (x_w, y_w) in the window, mapping into position (x_v, y_v) in the associated viewport.
- (d) What is clipping? Explain Cohen Sutherland line clipping algorithm.

Unit - IV

- 4. (a) Explain Approximation and Interpolation.
- (b) Explain projection Transformation and its type. Derive the Coordinate for parallel and perspective projection.

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- (c) Explain characteristics of B-Spline curves. Generate questions for blending function for the cubic spline considering $d = 3$.
- (d) What is specular reflection? Give the illumination model that incorporate this reflection.

Unit - V

5. (a) What is key frame?
- (b) What do you mean by Hidden Surface Removal? What are the different techniques, Explain any one method in detail.
- (c) What do you mean by Morphing in animation theory?
- (d) Discuss the steps of Design of animation sequence.