Q. Code: 399921

B.E./B.TECH. Degree Examination, December 2020

Fifth Semester

IT16501 Graphics and Multimedia

(Regulation 2016)

Time: Three hours Maximum : 80 Marks

Answer **ALL** questions

PART A - (8 X 2 = 16 marks)

1. Identify the features of Vector graphics.
   a. Grid of Pixels, High resolution
   b. Grid of Pixels, Poor resolution
   c. Lines and shapes, High resolution
   d. Lines and shapes, Poor resolution
2. Find the slope of the line through the given pair of points. (2,3) and (4,5).
   a. 0
   b. 1
   c. 2
   d. 3
3. Different _____ of the color are obtained by adding a white pigment to the original color, making it lighter as more white is added.
   a. Tones
   b. Shades
   c. Tints
   d. None of the above.
4. The drawback of Sutherland Hodgeman algorithm is
   a. Works well for convex polygon
   b. Not able to produce connected areas
   c. Both A & B
   d. None of the above
5. Use DDA algorithm to rasterize the line from (3, 4) to (5, 9).
6. Given input ellipse parameters are r_x=5 and r_y=7. Compute the initial value of the decision parameter of Region 1.
7. State the uses of chromaticity diagram.
8. List the file formats of video.

PART B - (4 X16 = 64 marks)

9. (a) Apply Bresenham's line drawing algorithm to digitize a line from (23, 13) to (33, 21) on a raster scan. **(16)**

(OR)

(b) Given a circle radius r=8 centered at origin, demonstrate the midpoint circle algorithm by determining positions along the circle octant in the first quadrant from x=0 to x=y. **(16)**

10. (a) Demonstrate how to clip the following lines using Liang-Barsky line clipping algorithm against the window coordinates (4,3), (4,9), (8,3) and (8, 9). The line end points are i) (2,4) to (9,6) ii) (5,2) to (7,10) **(16)**

(OR)

(b) A Clipping window ABCD has lower left corner at (3,3) and upper right corner at (9,7). Find the section of the clipped line PQ (4,4) (6,6), RS (6,8) (10,3) and TU (1,4) (3,1) using Cohen Sutherland line clipping algorithm. **(16)**

11. (a) (i) Derive the transformation matrix for 2D rotation and Rotate a triangle [(5,7) (3,3) (7,3)] about the vertex (5,7) by 180^0 and find the new vertices. **(12)**

(ii) What will be the effect of scaling factor Sx=1/5 and S_y=1/5 on a triangle whose coordinates are A= (6,2), B= (7,3) and C= (6,4). **(4)**

(OR)

(b) (i) Illustrate RGB color model with suitable diagrams and equations. **(6)**

(ii) Given a 3D triangle with points (1, 1, 1), (2, 2, 3) and (2, 2, 4). Apply shear parameter 3 on X axis, 3 on Y axis and 4 on Z axis and find out the new coordinates of the object. **(10)**

12. (a) (i) Illustrate the steps involved in software development life cycle. **(8)**

(ii) Examine the guidelines of authoring metaphors. **(8)**

(OR)

(b) (i) Prepare a report on case study of CBT on sound in multimedia and explain how audio content can be incorporated in a multimedia presentation. **(10)**

(ii) How will you create Multimedia Storyboard presentation. **(6)**