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GIET MAIN CAMPUS AUTONOMOUS GUNUPUR – 765022

B. Tech Degree Examinations, December – 2020

(Seventh Semester)

**BCSPC7010 / BITPC 7010 – COMPUTER GRAPHICS****(CSE & IT)**

Time: 2hrs

Maximum: 50 Marks

The figures in the right hand margin indicate marks.

**PART – A: (Multiple Choice Questions)****(1 x 10= 10 Marks)**Q.1. Answer ALL questions

- a. The process of determining the appropriate pixels for representing picture or graphics object is known as?
  - (i) animation
  - (ii) rasterization
  - (iii) representation
  - (iv) None of the above
- b. In Bresenham's algorithm, during the circle generation, it is easy to generate
  - (i) One octant first and other by successive translation
  - (ii) One octant first and other by successive rotation
  - (iii) One octant first and other by successive reflection
  - (iv) All octants
- c. In multiple transformation, which of the following are commutative?
  - (i) Successive transformations of the same kind
  - (ii) Uniform scaling and rotation
  - (iii) Rotation about a fixed point and translation
  - (iv) Both (i) and (ii)
- d. To change the position of a circle or ellipse we translate
  - i) Centre coordinates
  - ii) Overall coordinates
  - iii) Center coordinates and redraws the figure in a new location
  - iv) All of the above
- e. In Sutherland-Hodgman algorithm for polygon clipping, assume P (present point) lies inside the window and S (previous point) lies outside the window. Then, while processing through that window boundary, we should
  - (i) store the points P and S'
  - (ii) store the point P only
  - (iii) store the points S and S'
  - (iv) store the intersection point of line PS (S') only
- f. RGB system needs \_\_\_ of storage for the frame buffer?
  - (i) 2GB
  - (ii) 100 MB
  - (iii) 10 MB
  - (iv) 3 MB
- g. The type of hidden surface removal algorithm are
  - (i) Depth comparison, Z-buffer, back-face removal
  - (ii) Scan line and priority algorithm
  - (iii) BSP method and area subdivision method
  - (iv) All of the above

- h. Fractals that deals with curves that are  
 (i) regularly irregular (ii) irregularly regular  
 (iii) regularly regular (iv) irregularly irregular
- i. A technique used to estimate halftones without decreasing spatial resolution is called as  
 (i) Half-toning (ii) Error diffusion  
 (iii) Dithering (iv) None of the above
- j. The animation can be defined as a collection of images played in  
 (i) Not Sequence (ii) Defined Sequence  
 (iii) Both (i) and (ii) (iv) None of the above

**PART – B: (Short Answer Questions)**

**(2 x 5 = 10 Marks)**

Q.2. Answer ALL questions

- What do you mean by the refresh rate of a display device?
- Draw the line using bresenham line drawing algorithm with the endpoints (20,10) and (30,18).
- Differentiate between the perspective and parallel projections.
- Define fractals.
- List the techniques used in morphing.

**PART – C: (Long Answer Questions)**

**(6 x 5 = 30 Marks)**

Answer ANY FIVE questions

Marks

- The input to the circle algorithm is the radius with 12 cm and coordinate origin as the centre of the circle. Explain the method to draw the circle using the mid-point algorithm. (6)
- How a line is drawn using a DDA concept? Illustrate with an example. (6)
- Given a triangle with points (1, 1), (0, 0) and (1, 0). Apply shear parameter 2 on X axis and 2 on Y axis and find out the new coordinates of the object. (6)
- How Orthographic projections and Axonometric projections differentiates from oblique projections? (6)
- Explain in detail about the bezier curves. (6)
- How does the Z-buffer algorithm identifies the hidden surfaces? (6)
- Differentiate Phong shading, Gouraud shading and Flat shading. (6)
- How textures are rendered? (6)

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