

**2019**

*Time : 3 hours*

*Full Marks : 80*

*Candidates are required to give their answers in their own words as far as practicable.*

*The questions are of equal value.*

*Answer five questions in which*

*Q. No. 1 is compulsory.*

1. Choose the correct alternative of the following :

(a) Vector graphics is composed of :

(i) Pixels

(ii) Paths

(iii) Palett

(iv) None of these

(b) The quantity of an image depend on :

(i) No. of pixel used by image

(ii) No. of line used by image

- (iii) No. of resolution used by image
  - (iv) None of these
- (c) In Bresenham's algorithm, while generating a circle, it is easy to generate :
- (i) One octant first and other by successive rotation
  - (ii) One octant first and other by successive translation
  - (iii) One octant first and other by successive reflection
  - (iv) All octants
- (d) Which of the following technique is used in Midpoint Subdivision algorithm ?
- (i) Heap sort
  - (ii) Bubble sort
  - (iii) Binary search
  - (iv) Linear search
- (e) Graphics and image processing technique used to produce a transformation of one object into another is called ?
- (i) Half toning

- (ii) Morphine
  - (iii) Animation
  - (iv) None of these
- (f) Pixel can be arranged in a regular :
- (i) One dimensional grid
  - (ii) Two dimensional grid
  - (iii) Three dimensional grid
  - (iv) None of these
- (g) A scanner is specified by :
- (i) Dots per inch it can scan
  - (ii) Length of paper it can scan
  - (iii) Vertical and Horizontal Resolution
  - (iv) None of these
- (h) The method which used either delta x or delta y, whichever is larger, is chosen as one raster unit to draw the line this algorithm is called :
- (i) DDA Line Algorithm
  - (ii) Midpoint Line Algorithm

(iii) Bresenham's Line Algorithm

(iv) Generalized Bresenham's Algorithm

2. (a) What is the fundamental difference in the method of operation of a monochrome CRT and Coloured CRT ?  
(b) Describe the function of Image Scanner.
3. What are graphics primitives ? Mention some typical graphics primitives that a package may provide.
4. Compare the merits and demerits of Raster scan and flat panel displays. Differentiate between raster & vector graphics.
5. Explain graphics standards and difference between primitive standards and non-primitive standards.
6. (a) What is Cavalier Projection ? And what is cabinet projection ?  
(b) List various transformations in two and three Dimensional Transformations. Explain each.

7. Compare the Digital Differential Analyzer (DDA) and Bresenham's line drawing algorithms. What are the advantages of the Bresenham algorithm ?
8. (a) What is the difference between window and viewport ? What is the use of normalized device co-ordinate system ?  
(b) Derive the transformation matrix for window to viewport mapping transformation.
9. Describe the following :
  - (a) Polygon rendering methods
  - (b) Phong illumination model
10. Write short notes on any **two** the following :
  - (a) Tweening and Morphing
  - (b) LCD
  - (c) Multimedia Hardware
  - (d) Soft copy
  - (e) CRT

