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(6th Semester)

BACHELOR OF COMPUTER APPLICATIONS

Paper No. : BCA-602 (i) (OC)

(Computer Graphics)

(Old Course)

Full Marks : 75

Time : 3 hours

(PART : A—OBJECTIVE)

(Marks : 25)

The figures in the margin indicate full marks for the questions

SECTION—A

(Marks : 15)

1. Tick (✓) the correct answer in the brackets provided : 1×10=10

(a) The maximum number of points that can be displayed without overlap on a CRT is called

- (i) aspect ratio () (ii) resolution ()
(iii) brightness () (iv) pixel ()

(b) The standard aspect ratio for PC is

- (i) 6 : 5 () (ii) 4 : 3 ()
(iii) 3 : 2 () (iv) 5 : 3 ()

(c) Beam penetration method is usually used in

- (i) LCD () (ii) raster scan display ()
(iii) random scan display () (iv) DVST ()

- (d) The transformation in which an object is moved from one position to another in circular path around a specified pivot point is called
- (i) rotation () (ii) shearing ()
 (iii) translation () (iv) scaling ()
- (e) A sound produced by human voice is a good example of
- (i) analog data () (ii) digital data ()
 (iii) analog signal () (iv) digital signal ()
- (f) The process of mapping a world window in world coordinate system to viewport is called
- (i) transformation viewing ()
 (ii) viewport ()
 (iii) clipping window ()
 (iv) screen coordinate system ()
- (g) GUI means
- (i) Graphical User Interaction ()
 (ii) Graph User Interface ()
 (iii) Graphical Uniform Interaction ()
 (iv) Graphical User Interface ()
- (h) If the two end points of the codes of a line are (0001) and (0010), the line is
- (i) totally visible () (ii) partially visible ()
 (iii) totally invisible () (iv) transparent ()
- (i) The technique used to summarize the financial, statistical, mathematical, scientific and economic data is
- (i) computer art ()
 (ii) image processing ()
 (iii) presentation graphics ()
 (iv) All of the above ()
- (j) The quality of an image depends on
- (i) number of resolution used by an image ()
 (ii) number of lines used by an image ()
 (iii) number of pixels used by an image ()
 (iv) All of the above ()

2. State whether the following statements are *True (T)* or *False (F)* by putting a Tick (✓) mark in the brackets provided : 1×5=5
- (a) The Cartesian slope intercept equation for a straight line is $y = mx + b$.
(T / F)
- (b) A viewport is a polygon viewing region in computer graphics.
(T / F)
- (c) MIDI file is device independent. (T / F)
- (d) Memory area holding the intensity information of an image is called refresh buffer. (T / F)
- (e) The transformation that produces a parallel mirror image of an object is called rotation. (T / F)

SECTION—B

(Marks : 10)

Answer the following questions : 2×5=10

1. What is a display processor?
2. Differentiate between points and lines.
3. Explain viewing pipeline.
4. Explain text clipping.
5. What is a geometric transformation?

(PART : B—DESCRIPTIVE)

(Marks : 50)

The figures in the margin indicate full marks for the questions

1. (a) What is computer graphics? Explain any three GUI applications. 5
 - (b) Explain random scan and raster scan display with diagram. 5
- OR**
- (c) Explain Shadow Mask method for producing color displays with a CRT. 5
 - (d) State and explain different input and output devices. 5

2. (a) Explain image processing technique in computer graphics. 4
 (b) Explain Cohen-Sutherland line clipping algorithm with suitable diagram. 6
- OR**
- (c) What is Bezier curve? Explain different properties. 4
 (d) Explain Bresenham's line drawing algorithm. 6
3. (a) Explain two-dimensional geometric transformations. 5
 (b) Explain mid-point subdivision algorithm. 5
- OR**
- (c) Explain in brief window and viewport. 5
 (b) Explain the working principle of CRT monitor with diagram. 5
4. (a) Explain scan line seed fill algorithm. 4
 (b) Write short notes on the following : 6
 (i) Hypertext
 (ii) JPEG and MPEG
 (iii) Sound card
- OR**
- (c) Write down the difference between stack-based and queue-based seed fill algorithms. 4
 (d) Write short notes on the following : 6
 (i) Sphere
 (ii) Torus
 (iii) Ellipsoid
5. (a) What is MIDI? Write the advantages and disadvantages of MIDI. 5
 (b) What is animation? Explain different types of animation. 5
- OR**
- (c) Explain morphing and tweaking techniques in computer graphics. 5
 (b) What is multimedia? Explain different applications of multimedia. 5
