BCA(III) / 18 / 12

2012

Time : 3 hours

Full Marks : 80

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

The figures in the margin indicate full marks.

Answer from **both** the Groups as directed.

Group – A

(Objective Type Questions)

Answer **all** questions :   2×10 = 20

1. Choose the correct answer of the following :

    (a) Which of the following format is used to store digital image in multimedia application ?

        (i)   MIDI

        (ii) WAVE

(Turn over)

(iii) PICT

(iv) None of the above

(b) The standard colour diagram for studying is :

(i) HSV diagram

(ii) Colour Plette

(iii) Chromaticity diagram

(iv) None of the above

(c) MICR stand for :

(i) Magnetic ink case reader

(ii) Magnetic ink code reader

(iii) Magnetic ink character reader

(iv) None of the above

(d) The _____ line is straight but its _____ is not constant.

(i) Boundary fill, Edge fill

(ii) Flood fill, Edge fill

(iii) Flood fill, Boundary fill

(iv) Both (ii) and (iii)

(e) Inside the frame buffer the image is stored as a pattern of _____ digital numbers.

   (i) Binary

   (ii) Octal

   (iii) Decimal

   (iv) Hexadecimal

(f) In DDA, the rasterized lies to both side of actual line i.e., algorithm is _____ dependent and here end point accuracy is _____ .

   (i) Rasterization, 90%

   (ii) Orientation, Good

   (iii) Orientation, Poor

   (iv) Conversion, Poor

(g) The Process of selecting and viewing the picture with different views is called _____ and a process which divides each element

of the picture into its visible and invisible position is called _____ .

(i) Anchoring, Cartography

(ii) Anchoring, Filling

(iii) Windowing, Clipping

(iv) All of the above

(h) The orthographic projection that can display more than one face of object is called _____ and most commonly used is the _____ program.

(i) Cabinet, Cavalier

(ii) Axonometric, Isometric

(iii) Oblique, Perspective

(iv) One Point, Tow Point

(i) Consider line (5, 5) to (13, 9) use Bresenhem and give the value of full term :

(i) Tradition

(ii) Modern

(iii) Factual

(iv) None of the above

(j) The shift register is operated in ———— fashion i.e., similar to ————.

(i) $\Delta x = 8, \Delta y = 4, e = 0, m = 2$

(ii) $\Delta x = 7, \Delta y = 3, e = 7, m = 3$

(iii) $\Delta x = 6, \Delta y = 4, e = 1, m = 4$

(iv) None of the above

Group – B

(Long-answer Type Questions)

Answer any **four** questions :   15×4 = 60

2. What do you mean by Computer Graphics ? Explain hardware and software required for computer graphics.

3. (a) Differentiate between raster and vector graphics.

   (b) Compare the merits and demerits of raster-scan and flat-panel.

4. Write the 2D transformation scheme which includes translation, rotation and scaling.

5. Write the Bresenham's line algorithm for a line with end point (20, 5) and (30, 13) and also discuss the area filling techniques.

6. (a) Explain Cohen-Sutherland algorithm for line clipping with suitable example.

   (b) Explain various types of polygon Scanning Algorithm.

7. What are different line attributes ? Also, explain shear transformation and exterior clipping.

8. Explain the diffuse reflection in 3D computer graphics. What is Homogeneous and Cartesian Coordinate System ?

9. Describe a scheme to combine ray tracing technique and phong illumination model. Assume that the scene consist of a sphere and a planar object and there is a single point light source.

10. Write short notes on any **three** of the following :

   (a) Phong Shading

   (b) Voice System

   (c) Joy Stick

   (d) Touch Panel

   (e) LCD Device

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