BCA-303

GRAPHICS AND INTERNET

Time Allotted: 3 Hours | Full Marks: 70

The questions are of equal value.
The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

GROUP A
(Multiple Choice Type Questions)

1. Answer all questions. $10 \times 1 = 10$

(i) State whether the statement is true or false :

(A) light pen does not work in liquid crystal display

(ii) State whether the statement is true or false

(A) refresh rate of Raster Scan System is more than the Random Scan System

(iii) In 2D transformation, if R_{e1} and R_{e2} are two rotation matrix in same direction, then

(A) $R_{e1} R_{e2} \neq R_{e2} R_{e1}$ (B) $R_{e1} R_{e2} = R_{e2} R_{e1}$

(C) $R_{e1} R_{e2} \neq R_{e1+e2}$ (D) $R_{e1} R_{e2} = (R_{e2} R_{e1})^{-1}$

(iv) If the resolution of the screen is 1280 by 800 pixels, then aspect ratio is

(A) 8/5 (B) 5/8

(C) 4/3 (D) 3/4

(v) For Quadratic Bezier Curve there are

(A) two control points P_0 and P_1

(B) three control points P_0, P_1 and P_2

(C) four control points P_0, P_1, P_2 and P_3

(D) none of these

(vi) TCP / IP consists of

(A) 6 layers (B) 7 layers
(C) 8 layers (D) 5 layers

(vii) Generic domain labels info stands for

(A) international organizations
(B) information service providers
(C) information technology
(D) none of these

(viii) Bluetooth technology uses

(A) wireless LAN technology (B) wireless MAN technology
(C) wireless WAN technology (D) none of the above

(ix) Signals that involve human communication are generally

(A) digital (B) analog
(C) either analog or digital (D) none of these

(x) Signals that involve human communication are generally

(A) digital (B) analog
(C) either analog or digital (D) none of these

GROUP B
(Short Answer Type Questions)

Answer any *three* questions. 3×5 = 15

2. Differentiate between passive computer graphics and interactive computer graphics. Give example.

3. Compare and contrast DDA and Bresenham's line drawing algorithm

4. Find the equation of the line $y' = mx'$ in the xy – coordinate system if the $x'y'$ coordinate system is resulted from 90° rotation of the xy – coordinate system.

5. What is e-mail? Write down its usage. What are the different protocols about it.

6. What is Topology? What are the different topologies used in our daily life. Among different types of topologies which is more economic and write down its advantages and disadvantages.

GROUP C
(Long Answer Type Questions)

Answer any *three* questions. $3 \times 15 = 45$

7. (a) A mirror is placed in such a way that its x-intercept is 10 units and its y-intercept is 5 units from the origin. Find reflection of the vertices of the square whose coordinates are A (0, 0); B (5, 0); C (5, 5) and D (0, 5) in the mirror. 9+6
   (b) Write the Bresenham's line drawing algorithm.

8. (a) Explain Bezier curves and give the equation of the curve of degree n and the equation of the polynomial. 7+8
   (b) Find the coordinates of the point X (3,3) after it is rotated twice, first about a point A (1,2) by 45° anticlockwise direction and then about a point B (2,1) by 45° anticlockwise direction.

9. (a) Describe how the Cohen-Sutherland line clipping algorithm works with binary code. 9+6
   (b) Calculate the points using DDA Algorithm that would be plotted for a line whose end points are A (6, 5) and B (10, 10).

10. What is SMTP? Write down its usage along with pictorial representation. 15

11. Write short notes on any *three* of the following: 3×5
   (a) Shadow masking
   (b) Orthographic and oblique projection of an object
   (c) DNS
   (d) FTP
   (e) Graphical input devices