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Paper Code : BCA-303

GRAPHICS AND INTERNET

Time Allotted: 3 Hours | *Full Marks*: 70

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. Choose the correct alternatives for *any ten* of the following: 1×10=10

(i) DDA stands for

(a) Digital Differential Analyzer (b) Digital Distributed Analyzer

(c) Digital Data Analyzer (d) Digital Database Analyzer

(ii) Which of the following is a class B host address?

(a) 130.4.5.6 (b) 127.0.0.1

(c) 192.0.12.100 (d) None of these

(iii) Which is a perspective anomaly?

(a) Cavalier (b) Vanishing point

(c) Oblique (d) None of these

(iv) An orthographic projection is

(a) a parallel projection (b) either parallel or perspective projection

(c) a perspective projection (d) All of these

(v) 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

(vi) In homogeneous co-ordinate representation [4, 2, 0] represent a point

(a) lying at infinity (b) at (4, 2)

(c) at (4, 2) and at (2, 1) (d) None of these

(vii) The total number of pixels put on for the line starting at (1, 1) and ending at (12, 7) would be

(a) 7 (b) 11

(c) 12 (d) more than 12

(viii) Which of the following is not a hidden surface removal algorithm?

(a) Depth sort (b) Painter's algorithm

(c) Z-buffer (d) None of these

(ix) TCP is a/an

(a) reliable connection oriented protocol. (b) unreliable connection oriented protocol.

(c) reliable connectionless protocol. (d) unreliable connectionless protocol.

(x) A line with end point codes as 0000 and 0100 is

(a) partially invisible (b) completely visible

(c) trivially invisible (d) completely invisible

(xi) Which of the following techniques is used in Midpoint subdivision algorithm?

(a) Binary Search (b) Bubble Sort

(c) Linear Search (d) Sequential Search

Group – B

(Short Answer Type Questions)

Answer *any three* of the following. 5×3=15

2. What is an IP address? State different IP address classes. 1+4=5

3. What is web portal? State the difference between Server side and Client side programming. 2+3=5

4. Draw a line using DDA having co-ordinate as (–1, – 4) and (5, 6).

5. Define the following terms:

(i) Resolution (ii) Aspect ratio (iii) Refresh rate (iv) Bit map and Pix map (v) Frame buffer

6. Write the condition for smooth joining of two Bezier curve segment of degree three.

Group – C

(Long Answer Type Questions)

Answer *any three* of the following. 15×3=45

7. (a) Briefly explain the Bresenham's line drawing Algorithm.

(b) Draw a straight line segment in between (0, 0) and (5, 4) using Bresenham's Algorithm. Find the intermediate points. 9+6=15

8. (a) Reflect the triangle whose vertices are A (3, 1), B (1, 3) and C (3, 3) about the line $y = x + 4$.

(b) Using Mid-Point Circle Algorithm, find out the screen co-ordinates of the circumference of a circle whose centre is (0, 0) and radius is 10 units.

(c) Prove that the inverse of the rotation matrix is its transpose. 7+5+3=15

9. (a) What is the purpose of using <Frameset> tag in html?

(b) Write a Java Script for checking the blank text validation.

(c) What do you mean by Domain Name System? Explain about DNS Server.

(d) What is the importance of SMTP? 2+2+(4+5)+2=15

10. (a) Draw the Bezier curve by the control points (2, 1), (3, 2), (5, 0) and (6, 2).

(b) Discuss briefly about Cohen-Sutherland line clipping algorithm with suitable example.

(c) Write down the Z-Buffer algorithm. 5+5+5=15

11. Write short notes on (*any three*): 5×3=15

(a) Internet Security

(b) Homogeneous Co-ordinate System

(c) Cathode Ray Tube

(d) E-Commerce

(e) Orthographic and Oblique projection
