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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 : $10 \times 1 = 10$

   i) Aspect ratio is

      a) the ratio of image's width to its height

      b) the ratio of window to viewport height

      c) the ratio of image's intensity levels

      d) the ratio of image's height to its width.

   ii) The sub-categories of orthographic projection are

      a) cavalier, cabinet, isometric

      b) cavalier, cabinet

      c) isometric, dimetric, trimetric

      d) isometric, cavalier, trimetric.

iii) Z-buffer algorithm is used for

a) Frame buffer removal

b) Hidden line removal

c) Rendering

d) Animation.

iv) Refresh rate is

a) the rate at which the number of bit planes are accessed at a given time

b) the rate at which the picture is redrawn

c) the frequency at which the aliasing takes place

d) the frequency at which the contents of the frame buffer is sent to the display monitor.

v) The blending functions of Bezier curves are

a) Splines

b) Bernstein polynomials

c) Lagrangian polynomials

d) Newtonian polynomials.

vi) Oblique projection is

a) an orthographic projection

b) a perspective projection

c) a parallel projection

d) axonometric projection.

vii) What will be the value of starting decision parameter if we intend to draw a line between $A(3, 6)$ and $B(4, 9)$ using Bresenham's algorithm ?

a) 6 b) 5

c) 3 d) none of these.

viii) How long is an IPv6 address ?

a) 32 bits b) 128 bytes

c) 64 bits d) 128 bits.

ix) 'METHOD' and ACTION' are attributes of

a) <FORM>tag b) <FRAME>tag

c) <INPUT> tag d) <FRAMESET>tag.

x) What layer in the TCP/IP stack is equivalent to the Transport layer of the OSI model ?

a) Application b) Host-to-Host

c) Internet d) Network Access.

xi) If P0, P1, P2 be the control points, then the curve must pas through

a) P0 and P1

b) P1 and P2

c) P2 and P0

d) points closed to P0, P1 and P2.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. Consider the two different raster systems with resolutions of 800 × 600 and 2560 × 2048. What size of the frame buffers is needed for each of these systems to store 24 bits per pixel ? How much storage is required for each system if 16 bits per pixel are to be stored ?

3. Write the tags for the following settings in HTML : 1 + 1 + 1 + 1 + 1

   a) Background image

   b) Font colour, size and face

   c) Image insertion with height and width specification

   d) Text hyperlink

   e) Background colour.

4. Define the following terms : 1 + 1 + 1 + 1 + 1

   a) Morphing

   b) Aspect Ratio

   c) Resolution

   d) Persistence

   e) Animation.

5. What is *e*-commerce ? Write down the different types of *e*-commerce with suitable example. 2 + 3

6. a) How many layers and there in TCP/IP model ?

   b) Describe the difference between connection-oriented and connectionless services provided by the transport layer. 2 + 3

GROUP – C
(Long Answer Type Questions)

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

7. a) Write mid-point circle drawing algorithm and generate coordinates for a circle of radius 12 cm with the centre located at (0, 0) 4 + 6

   b) Perform a 45° rotation of triangle *ABC* where *A* (0, 0), *B* (1, 1), *C* (5, 2)

      i) about the origin

      ii) about the point *P* (–2, –2). 2 + 3

8. a) A clipping window *ABCD* is specified as *A* (0, 0), *B* (40, 0), *C* (40, 40) and *D* (0, 40). Using mid-point subdivision algorithm find the visible portion, if any, of the line segment joining the points *P* (– 10, 20) and *Q* (50, 10).

b) Draw a straight line segment in between (0, 0) and (5, 4) using Bresenham's Algorithm. Find the intermediate points. 8 + 7

9. a) What is projection ? How many projections are there ? Differentiate between oblique projection and orthographic projection. 2 + 2 + 4

b) Find the normalization transformation for windows to viewport which uses the rectangle whose lower left corner (2, 2) and upper right corner (6, 10) as a window and the viewport that has lower left corner at (0, 0) and upper right corner at (1, 1). 7

10. a) What is cookie ? Write stages of database connection using ASP.

b) Define class *A*, *B*, *C*, *D* and *E* networks.

c) What is on-line payment ? What are the electronic payment standard and methods ? 5 + 5 + 5

11. Write short notes on any *three* of the following : 3 × 5

a) z-buffer algorithm

b) Network security

c) Java Applet and its applications

d) SMTP

e) DNS.