Invigilator's Signature : .....

2011
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 the following : $10 \times 1 = 10$

   i) In homogeneous coordinate representation [4, 2, 0] represents a point

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

      c) at (2, 0) d) none of these.

   ii) If P_0 , P_1, P_2 be the control points (in sequential ordering) then the Bezier curve must passes through

      a) P_0 and P_1

      b) P_1 and P_2

      c) P_2 and P_0

      d) Points close to P_0 , P_1 and P_2.

   iii) The total No. 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.

iv) A rotation matrix is any matrix that acts as a rotation of Euclidean space, represented as

a) $\begin{bmatrix} \cos\theta & -\sin\theta \\ \sin\theta & \cos\theta \end{bmatrix}$ b) $\begin{bmatrix} \cos\theta & \sin\theta \\ -\sin\theta & \cos\theta \end{bmatrix}$

c) $\begin{bmatrix} \cos\theta & \sin\theta \\ \sin\theta & \cos\theta \end{bmatrix}$ d) $\begin{bmatrix} -\cos\theta & \sin\theta \\ \sin\theta & \cos\theta \end{bmatrix}$.

v) The reflection matrix of a point $P(x, y)$ about the straight line $y = -x$ is $\begin{bmatrix} 0 & ? \\ -1 & 0 \end{bmatrix}$, The" ?" mark in the matrix is

a) 0 b) 1

c) -1 d) none of these.

vi) The class of the following IP address : 163.121.20.2 is

a) CLSSS A b) CLASS B

c) CLASS C d) CLASS D.

vii) TCP is a/an

a) Reliable connection oriented protocol

b) Unreliable connection oriented protocol

c) Reliable connectionless protocol

d) Unreliable connectionless protocol.

viii) ..... is a cryptographic protocol which provide secure communications on the internet.

a) UDP b) TCP

c) SSL d) SMTP.

ix) Socket address is

a) Port address

b) IP address

c) Combination of (a) and (b)

d) None of these.

x) 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.

GROUP – B

(Short Answer Type Questions)

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

2. Describe Java Applet.

3. Consider the three different master systems with resolution of 640 × 480, 1280 × 1024 and 2560 × 2048. What size of the frame buffers is needed for each of these systems to store 12-bits per pixel ? How much storage is required for each system if 24-bits per pixel are to be stored ?

4. Write short notes on SMTP and POP3 Protocols. $2\frac{1}{2} + 2\frac{1}{2}$

5. Write the tags for the following settings in HTML :

   a) Background image

   b) Table

   c) Image insertion with height and width specification

   d) Text hyperlink. $1 + 1 + 2 + 1$

6. What is an IP address ? State different IP address classes. $1 + 4$

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. a) Find the points required to plot to draw the circle with centre as (100, 90) and radius 10 using Bresenham's circle drawing algorithm.

   b) Briefly describe the main functional components and its functions of a CRT terminal with a proper diagram. 7 + 8

8. i) Derive composite transformation matrix for

   a) two successive translation

   b) two successive scaling and

   c) general pivot point rotation.

   ii) What is understood by z-buffer algorithm ? (3 + 3 +4) + 5

9. a) Differentiate two basic types of network security.

   b) What do you mean by E-commerce ? What are electronic payment standards and methods ?

   c) What is the need of Internet security ? 6 + 2 + 4 +3

10. a) Define class A, B, C, D, E Networks.

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

    c) Write a short note on FTP. 5 + 5 + 5

11. 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 Mid-point sub-division algorithm.

5 + 5 + 5