Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS / BCA / SEM-3 / BCA-303 / 2010-11

2010-11

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) The path taken by the electron beam when returning to the left side of the CRT screen will be

a) horizontal retrace b) vertical retrace

c) diagonal retrace d) none of these.

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

a) UDP b) TCP

c) SSL d) SMTP.

iii) ..... is an extension of HTML file.

a) htm b) html

c) http d) both (a) and (b).

iv) ..... refers to the light given off by a phosphor while it is being exposed to electron beam.

a) Persistence b) Fluorescence

c) Phosphorescence d) None of these.

v) When the point (3, 2) is reflected in *y*-axis, then the coordinate of the reflected point will be

a) (–3, 2) b) (3, –2)

c) (–3, –2) d) None of these.

vi) ..... is connectionless transport layer protocol in the TCP/IP protocol stack.

a) TCP b) IP

c) UDP d) None of these.

vii) In Cohen-Sutherland algorithm, ... region bit code is assigned to each end point of the line.

a) 2 b) 3

c) 4 d) 5.

viii) Find the class of the following IP address : 193.171.21.23

a) CLASS A b) CLASS B

c) CLASS C d) CLASS D.

ix) ..... is the decision variable in Bresenham's circle drawing algorithm.

a) $d = 2 - 3r$ b) $d = 3 - 2r$

c) $d = 4\ r - 5$ d) None of these.

x) ..... display was used to primary draw line segments.

a) Raster scan b) Random scan

c) LCD d) None of these.

GROUP – B

(Short Answer Type Questions)

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

2. Write the general form of a scaling with respect to a fixed point P (h, k).
3. What is aspect ratio ? What do you mean by a resolution of a screen ?
4. Define the difference between classful & classless addressing system.
5. Define the difference between IPv4 and IPv6. What is address space ?
6. Find the transformation matrix for reflection of the point $P(x, y)$ about the line $y = x$.

GROUP – C

(Long Answer Type Questions)

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

7. a) An organization is granted the block 205.16.37.39/28. The administrator wants to create 32 subnets.
   i) Find the subnet mark
   ii) Find the number of addresses in each subnet
   iii) Find the first and last addresses in subnet 1
   iv) Find the first and last addresses in subnet 32

   $2 \times 4 = 8$

   b) Suppose an organization is given the block 17.12.04.0/26 which contains 64 addresses. The organization has 3 offices & needs to divide the addresses into 3 sub-blocks of 32, 16 & 16 addresses. Design the network of that building. 7

8. a) Write Cohen – Sutherland Algorithm. 6

   b) Draw the Beizer curve defined by the control points $B_0(2, 1)$, $B_1(3, 2)$, $B_3(5, 0)$, $B_{4(}6, 2)$. 6

   c) Define the difference between raster scan and random scan displays. 3

9. a) What is the difference between Parallel Projection and Perspective Projection ? 4

   b) Write and explain Bresenham's algorithm for drawing a straight line. How does it remove the drawbacks of 'DDA' algorithm ? 6

   c) What are the vertical retrace and horizontal retrace ? 2

   d) Define condition about a point clipping. 3

10. a) Magnify the triangle with vertices A (0, 0), B (1, 1) and C (5, 2) to twice its size while keeping C (5, 2) fixed. 6

    b) Prove that the inverse of the rotation matrix is its transpose. 6

    c) Define frame buffer. 2

    d) Define the difference between pixmap and bitmap. 1

11. Write a short notes (any *three*) : $3 \times 5 = 15$

    a) Shadow masking

    b) Orthographic and oblique projection of an object

    c) SMTP

    d) DNS

    e) FTP.

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