GROUP - C

(Long Answer Type Questions)
Answer any *three* of the following.   3x15=45

8. a) Explain Mid-point Circle drawing algorithm.
    b) Draw a circle with radius = 7 cm. using the above algorithm
    c) What is Aspect ratio?

    7+6+2

9. a) What do you mean by hidden surface removal? .
       Explain Z-buffer method.
    b) Find out an expression for Bezier curve.
    c) Find the equation of Bezier curve which pass through
    points(0,0) and (-2,1) and is controlled through points (7,5) and
    (2,0).

    (1+4)+5+5

10. a) Explain Cohen- Sutherland line clipping algorithm with an
    example.
    b) Suppose a window has its lower left corner at (-2, -1 and
    upper right corner at (3,2). Using the above algorithm find the
    visible portion of the line joining points (-3, 1), (1, 3)
    c) Discuss Window to Viewport Coordinate transformation

    5+6+4

11. Write short notes on any three of the following: 3X5

    a) 3D Projection
    b) Z Buffer Algorithm
    c) Shear transformation
    d) Sutherland Hodgeman Polygon Clipping Algorithm
    e) Functionality of a refresh CRT

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2014

Computer Graphics

Time Alloted : 3 Hours   *Full Marks : 70*

The figure 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
questions.

    10x1=10

    i) Minimum memory required for frame buffer when resolution is
    800 X 600 and bit/pixel is 8.

    a) 512Kb   b) 1 Mb
    c) 2Mb   d)256Kb

    ii) Intensity ratio of Red(R) Green (G) and Blue (B) in Gray axis is

    a) 1:2:1   b) 1:1:1
    c) 2:1:1   d) 1:1:2

    iii) Disadvantage of DDA is

    a) Round of error   b) Subtraction error
    c) addition error   d) a,b

    iv) In Bresenham's line drawing algorithm the decision
    parameter $P_{k+1} = P_k + 2\Delta y$ when

r j 38   1   [Turn over]

a) $P_k < 0$
b) $P_k > 0$
c) $P_k = 0$
d) None

v) The method super sampling is associated with

a)Boundary fill algorithm
b)Gouraud shading
c)Antialiasing
d)None of above

vi) Flood fill algorithm cannot be applied if

a) More than one boundary colour
b) More than one interior colour
c) Single boundary colour
d) Single interior colour

vii) In order to avoid Flicker in monitor having low refresh rate the technique use

a) refreshing
b) Vertical refreshing
c) Interlacing
d) Horizontal refreshing

viii) Quantization is done by

a) Before Sampling
b) After Sampling
c) Simultaneously
d) None of above

ix) In circle drawing algorithm we use

a) 4-Symmetry
b) 2- Symmetry
c) 8- Symmetry
d) No Symmetry

x) Colour printer use

a) RGB colour model
b) CMYK colour model
c) HSB colour model
d) LAB colour model

xi) Onion skinning technique used in

a) Audio Compression
b) Video Compression
c) Animation
d) None of above

xii) Which one is the Compression Technique?

a) Hoffman
b) DES
c) DFS
d) None of above

GROUP - B

(Short Answer Type Questions)

Answer any *three* of the following.   3x5=15

2. Find the transformation matrix that transforms the square ABCD whose center is at (2,2)and is reduced to half of its size, with center still remaining at (2,2). The coordinates of square ABCD are A(0,0), B(0,4), C(4,4), D(4,0). Find the coordinates of the new square.

(5)

3. Compare the DVST, Vector Scan, Raster Scan display system. What is screen resolution?

(4+1)

4. i) What is Nyquist criteria? What effect is produced if it is violated.
   ii)Explain why a digital sound wave is regarded as a degraded version of the original analog wave, using the concept of quantization error.

(2.5+2.5)

5. What is scan conversion? Explain the principle of Brasenham's line drawing algorithm mathematically.

(1+4)

6. Prove that two scaling transformations are commute i.e., S1 S2=S2 S1 and two 2D rotations about origin also commute i.e., R1 R2=R2 R1

(2.5+2.5)

7. Explain Key frames and twinning with examples. What are the advantages of computer assisted animation?