Total No. of Printed Pages:2

SUBJECT CODE NO:- H-279
FACULTY OF ENGINEERING AND TECHNOLOGY
S.E. (CSE/IT)
Computer Graphics
(REVISED)

[Time: Three Hours] **[Max.Marks: 100]**

Please check whether you have got the right question paper.

N.B
    i.   Q.No.1 from section A and Q.No.6 from section B are compulsory.
    ii.   Attempt any two questions from the remaining questions in each section
    iii.   Assume suitable data, if necessary.
    iv.   Figures to the right indicate full marks.

Section A

Q.1   Attempt any five: 10

1) Define computer graphics.
2) Define Random scan, Raster scan displays.
3) What do you mean by emissive and none missive displays?
4) What is horizontal & vertical retrace?
5) Distinguish between convex & concave polygon.
6) What are advantages & disadvantages of DDA line algorithm?
7) How to draw cross lines using OpenGL?

Q.2   a) Write down and explain midpoint circle drawing algorithm .Assume 10cm as the radius   08
          and co-ordinate origin as the center of the circle.
    b) Write OpenGL program to draw hexagon.   07

Q.3   a) Write any two polygon filling algorithms.   08
    b) Explain various primitives and attributes in OpenGL.   07

Q.4   a) Rasterize the line using DDA line drawing algorithm with end points (5, 5)   08
          And (13, 9).
    b) How display list is used in OpenGL? Give suitable example.   07

Q.5   Write short notes on (any three).   15

1) Logical classification of i/p devices.
2) Display processor.
3) Application of computer graphics.
4) Menu & submenu in OpenGL.
5) Viewing.

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Section B

Q.6   Attempt any five: 10
        1) What is composite transformation?
        2) Define pivot point for rotation.
        3) What is point clipping?
        4) What is called scaling transformation?
        5) Differentiate between parallel and perspective projections.
        6) Enlist properties of light.
        7) Why Cohen Sutherland line clipping is popular?

Q.7   a) Explain Z-buffer algorithm for hidden surface removal.   08
        b) Consider the object with vertices (2, 2) (2, 1) (3, 1) & (3, 2).double the object & translate   07
           it by 10 units along x & y direction.

Q.8   a) Explain midpoint subdivision algorithm.   08
        b) Consider the ΔABC with co-ordinates A(1,1);B(10,1); C(5,5). Rotate above object by   07
           90° in anticlockwise direction. Give coordinates of transformed object.

Q.9   a) How window-to-viewport coordinate transformation happens?   08
        b) Prove that multiplication of transformation matrices for two successive rotations is   07
           commutative.

Q.10   Attempt any three.   15
        1) Clipping operations
        2) Concatenation of transformations.
        3) Affine transformations.
        4) Transformations in homogeneous co-ordinates.
        5) OpenGL 2D viewing functions.
                 i)   glu Ortho 2D.
                 ii)   gl viewport.u