"Do not write anything on question-paper except Roll Number, otherwise it shall be deemed as an act of indulging in unfair means and action shall be taken as per rules."

Roll No. 19MCA1001

M.C.A. (II)

5 **Comp. Graph.**

MASTER OF COMPUTER APPLICATION
SECOND SEMESTER
EXAMINATION - 2019
CSE - 525 A : COMPUTER GRAPHICS (M)

Time - Three Hours

Maximum Marks - 100

Note:- (1) Attempt any **FIVE** question.

(2) All question carry equal marks.

1. (a) Write any five application areas of computer graphics. 10

(b) Explain the following:

(a) Frame buffer.

(b) Raster scan display.

(c) Vector display.

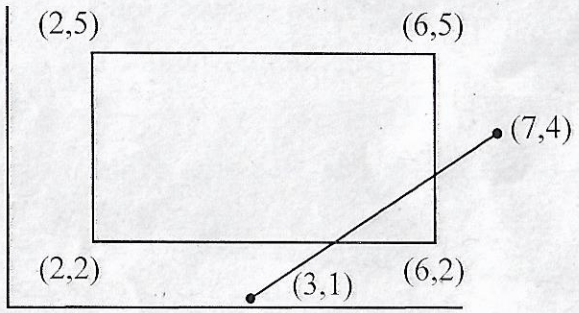
(d) Aspect ratio and resolution.

(e) Graphics Processing Unit (GPU) 5x2=10

2. (a) Write midpoint circle generation algorithm. Given a circle, radius r = 10, generate points along the circle path with the circle centered on the origin. 12

(b) How are polygons represented and stored in memory. Explain with an example. 8

3. (a) Explain Sutherland and Cohen line clipping algorithm. Consider a window with coordinates as shown below. Generate region code for the given line end points using the above mentioned line clipping algorithm (i:e, find codes for (7,4) and (3,1).)



15

(b) Write flood fill polygon filling algorithm using 8 - connected approach. 5

4. (a) What do you mean by composit transformations. Explain with an example the matrices involved in any composit transformation (Assume any composit transformation) 10

(b) Explain Sutherland-Hodgeman polygon clipping algorithm using suitable example. 10

5. (a) Explain the following:

(a) Parallel Projection.

(b) Orthographic and oblique projection.

(c) Perspective projection.

(d) Isometric projection. 8

(b) Explain z-buffer algorithm to remove hidden surfaces. 6

(c) Explain rotation and reflection with reference to 3D transformations. Give suitable example. 6

6. (a) What are Bezier Curves and Bezier Surfaces? Write its properties. 10

(b) Explain painter algorithm in detail. 10

7. Write short notes on the following (any three)

(a) Interpolation and approximation. 6

(b) Interactive picture construction technique. 7

(c) 3D- display devices. 7

(d) User dialogue. 6