Roll No. .....

Subject Code—2057-X

M.C.S. EXAMINATION

(Third Semester)

COMPUTER GRAPHICS

MS-13

Time : 3 *Hours* *Maximum Marks* : 100

Note : Attempt any *Five* questions. All questions carry equal marks.

1. (a) What is computer graphics ? What are its various types ? Discuss the important uses of computer graphics.

   (b) What is multimedia technology ? What are the minimum hardware and software requirements for a multimedia system ? Illustrate.

2. Differentiate between the following :

   (a) LCD and Plasma Display Systems

(b) Shadow-mask and Beam-penetration technique.

3. (a) What is scan conversion ? What steps are required to plot a line whose slope is between 0 and 45° using Bresenham's method ? Indicate which raster locations would be chosen by Bresenham's algorithm when scan-converting a line from screen coordinate (2,3) to screen coordinate (12,7).

(b) What is meant by distortion ? How can distortion be removed in viewing transformation ?

4. (a) Why is the electron beam allowed to overscan ? Also discuss about the technique, which involves splitting a raster-scan pattern into two separate patterns.

(b) What is Graphics Software ? How does graphics software differ from each other on the basis of the Graphics Functions ? Illustrate.

5. Explain the following :

   (a) Z-buffer algorithm

   (b) Windowing transformation.

6. (a) What are Raster-Scan Graphic Systems ? How does Raster-Display Processor play an important role in its functioning ? Explain.

   (b) What is multimedia authoring process ? Discuss the activities involved in multimedia authoring process.

7. (a) What do you understand by line clipping ? Illustrate the most important line-clipping algorithm.

   (b) What is rotation transformation ? Derive the transformation matrix that rotates an object point θ^o about the origin. Also write the matrix that represents rotation of an object by 45^o about the origin. What shall be the new coordinates of the point P (5, –10) ?

8. Explain the following :

(a) Bresenham's Circle Algorithm

(b) Perspective projection.