Note : i) All the questions are compulsory.
ii) All questions carry equal marks.
iii) Figures to the right indicate marks.
iv) Draw neat labeled diagrams wherever necessary.
v) Write answers to same questions together.

Q.1.   Answer the following questions. (any 2)   [10]

a) Write and explain Raster Scan Display mechanism. Also compare raster scan display with random scan display.

b) Define Computer graphics. Explain images & objects. Write a note on image representation.

c) Write DDA line algorithm. Consider a line AB with A = (-1,0) and B = (-8,4). Apply simple DDA algorithm, and calculate the pixels on line and plot them.

Q.2.   Answer the following questions.(any 2)   [10]

a) Explain the concept of rotation about an arbitrary point.

b) Considering basic 2D transformations, write a note on scaling and translation.

c) What is reflection ? Considering a unit square in 2D plane situated in origin, perform all possible reflections on this square and sketch the results.

Q.3.   Answer the following questions. (any 2)   [10]

a) Explain the concept of 3D rotation. Also specify the different matrices of rotation about different axes in both clockwise & counter-clockwise direction.

b) Write a note on 3D shear with example.

c) Explain parrallel projection with its categorization in details.

Q.4.   Answer the following questions. (any 2)   [10]

a) What is clipping ? Explain the concept of Cohen-Sutherland line clipping.

b) Explain window and viewport. Also draw a 2D graphics pipeline. What are the steps in 2D viewing pipeline.

c) Explain inside-outside tests and winding number tests with appropriate examples.

(P.T.O.)