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.

[10]

Q.5. **Answer the following questions. (any 2)**

a) Explain painter's and reverse painter's algorithm.

b) What is coherence ? Explain the different types of coherence.

c) Explain the terms visible & hidden surface. Also explain the classification of visible surface detection algorithms.

[10]

Q.6. **Answer the following questions. (any 2)**

a) Define Computer Animation. Write a note on key-frame and procedural animation. Also compare them.

b) Explain object rendering.

c) What is morphing ? Explain.

— THE END —