

5/2/2023

(Time: 3 Hours)

Marks: 80

- N.B:** 1) Question **number 1** is compulsory.
 2) Attempt **any three** out of the remaining.
 3) Assume suitable data if **necessary** and justify the assumptions.
 4) Figures to the **right** indicate full marks.

- Q 1**
- A What is computer graphics and discuss its representative uses [5]
 - B Explain traditional animation techniques [5]
 - C Describe homogeneous coordinate system [5]
 - D Explain point clipping method with suitable example [5]
- Q 2**
- A Given a triangle ABC with coordinates A (0, 0), B (10, 0), C(0,10). Apply following transformations in sequence [10]
 - i. Translate the triangle by translation parameters (20, 30) units.
 - ii. Rotate the triangle by 90° .
 - B Fine the new coordinates of the triangle.
 - B Explain Cohen Sutherland line clipping method with suitable example [10]
- Q 3**
- A Derive midpoint ellipse drawing algorithm with suitable diagrams [10]
 - B Discuss principles of animation. [10]
- Q 4**
- A What is window and viewport. Derive the transformation matrix for a window-to-viewport transformation [10]
 - B Explain and write matrices for 3D rotation about X, Y and Z axes. [10]
- Q 5**
- A What is aliasing effect? Explain antialiasing techniques [10]
 - B Calculate all the points on the line from point A(0,0) to point B(8,10) using DDA line drawing method. [10]
- Q 6**
- A Derive the 2D transformation matrix for scaling with respect to fix point. [10]
 - B Explain depth buffer method with suitable diagrams [10]
