

(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 [10]  
following transformations in sequence  
i. Translate the triangle by translation parameters (20, 30) units.  
ii. Rotate the triangle by  $90^\circ$ .  
Find 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 [10]  
line drawing method.

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]

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Q.P. Code  
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