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Total No. of Questions : 09] **[Total No. of Pages : 01**

B.Tech. (Sem. – 5th)
COMPUTER GRAPHICS
SUBJECT CODE : CS - 309
Paper ID : [A0468]
[Note : Please fill subject code and paper ID on OMR]

Time : 03 Hours **Maximum Marks : 60**

Instructions to Candidates:

1) Section - **A** is **Compulsory**.

2) Attempt any **Four** questions from Section - **B**.

3) Attempt any **Two** questions from Section - **C**.

Section - A

Q1) *(10 × 2 = 20)*
- a) What do you mean by the terms: Morphing and planning.
- b) What is "Transformation" in terms of Computer Graphics?
- c) How shearing is different from scaling?
- d) Define the terms: Screen and world coordinates with example.
- e) What is anti-aliasing and its need?
- f) Name various circle and eclipse drawing algorithms.
- g) Give the transformation matrix for rotating a point P(x, y), about X-axis by 90 degrees.
- h) How vector CRTs are different from Raster CRTs.
- i) Define the terms: Rendering and Animation.
- j) What do you mean by Hidden surface removal and why we need it?

Section – B *(4 × 5 = 20)*

Q2) What is clipping? Name various Graphics clipping algorithms and describe in brief any line clipping algorithm.

Q3) What is DDA and its limitations? Why it is named so? Explain in detail DDA line drawing algorithm and discuss its complexity.

Q4) Compute the homogeneous Transformations matrix to rotate and scale a 3-d object about a point (x, y, z).

Q5) What is the difference between Gouraud and phong shading? Which is better?

Q6) Describe in brief the z-buffer algorithm.

Section – C *(2 × 10 = 20)*

Q7) Name the different types of Bezier curves and their applications. Discuss how the Bezier curves are constructed.

Q8) What is 3-D viewing? Explain in brief the role of parallel projections in 3-D visualization.

Q9) Write short notes on any two:
- a) Illumination models
- b) Drum Plotter
- c) Text Clipping.

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