

Roll No:

Total No. of Questions : 09]

[Total No. of Pages :02

Paper ID [A0468]

(Please fill this Paper ID in OMR Sheet)

B.Tech. (Sem. - 5th)

COMPUTER GRAPHICS (CS - 309)

Time : 03 Hours

Maximum Marks : 60

Instruction 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) List two advantages of DDA algorithm.
- b) For large polygons, the flood fill algorithm may fail, why?
- c) What is solid area scan conversion?
- d) What is display file?
- e) What is a viewport?
- f) What is viewing transformation?
- g) Define frame buffer.
- h) What is refraction effect?
- i) Define ray tracing.
- j) What is the reason for plotting Bezier curves piecewise?

Section - B

(4 × 5 = 20)

- Q2) What is aliasing? How can we remove it?
- Q3) Write a pseudo code to check whether a point is inside or outside a polygon.
- Q4) Prove that two scaling transformations commute, that is
 $S_1 S_2 = S_2 S_1$.
- Q5) Write a routine to clip an ellipse against a rectangular window.
- Q6) Explain z-buffer algorithm.

Section - C

(2 × 10 = 20)

- Q7) Write a procedure for thick line using Bresenham's algorithm.
- Q8) What steps are required to shade an object using Phong shading algorithm? Which shading method is best suited to be used in animation sequences? Justify.
- Q9) Write short notes the following:
(a) Homogeneous coordinates.
(b) B-Spline curves.

