

Total No. of Questions : 6]

SEAT No. :

PA-23

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[5931]-33

**S.E. (Computer/Artificial Intelligence & Data Science/Computer
Science & Design Engineering)**

COMPUTER GRAPHICS

(2019 Pattern) (Semester - I) (210244)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates:

- 1) *Answer Q.1 or Q.2 and Q.3 or Q.4 and Q.5 or Q.6.*
- 2) *Neat diagram must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *Assume suitable data, if necessary.*

Q1) a) Define the terms: color depth, scan conversion refresh rate. pixel. [4]

b) Differentiate between Raster Scan and Random Scan. [4]

OR

Q2) a) Define the terms: resolution, aspect ratio, frame buffer, refresh rate. [4]

b) Compare DDA line drawing Algorithm with Bresenham's Line drawing algorithm. [4]

Q3) a) Write short note on "Handling Keyboard inputs with GLUT". [6]

b) Explain significance of error term in Bresenham's circle drawing algorithm. Explain its mathematical derivations. [6]

OR

Q4) a) Describe OpenGL architecture with block diagram in detail. [6]

b) Explain Bresenham's circle drawing algorithm in detail. [6]

P.T.O.

Q5) a) Write and explain with example Sutherland-Hodgeman clipping algorithm. [5]

b) Let ABCD be the rectangular window with A(20, 20), B(90, 20), C(90, 70), and D(20, 70). Find region codes for endpoints and use the Cohen-Sutherland algorithm to clip the lines : (i) P1 P2 with P1 (10, 30), P 2 (80, 90). [5]

OR

Q6) a) Explain with an example Boundary fill Algorithm. [5]

b) Clip the line PQ having coordinates P(4, 1) and Q(6, 4) against the clip window having vertices A(3, 2), B(7, 2) C(7, 6) D(3, 6). Use cohen-sutherland algo. [5]
