

Roll No.

(05/25)

14333

B.C.A. EXAMINATION

(For Batch 2021 & Onwards)

(Fourth Semester)

COMPUTER GRAPHICS

BCA-43

Time : Three Hours

Maximum Marks : 80

Note : Q. No. 1 is compulsory. Attempt *four* more questions by selecting *one* question from each Unit.

1. (i) What is interlacing ? State its relevance.
- (ii) What is meant by coordinate system transformations ?
- (iii) Define raster scan system.
- (iv) What is window to viewport coordinate transformations ?

- (v) Explain pixel and frame buffer.
- (vi) What is polygon clipping ?
- (vii) Define lookup table.
- (viii) Explain RGB color model. $2 \times 8 = 16$

Unit I

- 2. Define computer graphics. Explain various application areas of computer graphics. 16
- 3. (a) Explain the working of plasma panel display. 8
- (b) Give the architecture of raster scan display. Differentiate it from a random scan display. 8

Unit II

- 4. (a) Explain Bresenham's circle drawing algorithms. 8
- (b) Write the algorithm to draw an ellipse. 8

5. Explain DDA line drawing algorithm with its drawbacks. Draw a line using DDA, having coordinates as $(-1, -2)$ and $(7, 5)$. 16

Unit III

6. Explain the following : 8+8
- (a) Inverse transformation
 - (b) 3D Shearing.
7. What are composite transformations ? Explain any *two* composite transformations along with their matrix representations. 16

Unit IV

8. Differentiate between window port and viewport. Define window-to-viewport transformation. 16
9. (a) Explain Z-buffer method for hidden surface removal with an example. 8
- (b) Explain Sutherland-Hodgeman polygon clipping algorithm for 3D clipping. 8