



RAN-2111000106010001

Bachelor of Computer Applications (Sem. - VI) Examination September - 2025 601-1 - Computer Graphics

Time: 3 Hours]

[Total Marks: 70

સૂચના : / Instructions

- (1) ઉપરોક્ત દર્શાવેલ વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fill up strictly the above details on your answer book.

Seat No.:

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Student's Signature

Q. 1. Answer in short (Any Seven)

(14)

1. List computer graphics standard. Explain GKS graphics standard.
2. What are the differences between raster and vector graphics file formats?
3. What are the advantages of Shadow mask method over beam penetration method?
4. What is the role of electron gun in CRT?
5. Calculate slope and intercept of a line segment given two points A (5, 6) and B (10, 20)
6. What do you mean by anti-aliasing of line?
7. List limitations of Even ODD method of polygon inside test.
8. What do you mean by seed pixel in flood fill algorithm?
9. What is Y-shear in computer graphics, and how does it affect an object?
10. What is the transformation matrix to enlarge an object by 200% in computer graphics?

Q. 2. Answer the following in detail (Any 2)

(14)

- a. What are graphic standards, and why are they important? Explain them in detail.
- b. Discuss the role of computer graphics in the presentation and Education and training.
- c. Compare Raster Scan and Random Scan display technologies.

Q. 3. Do as directed (Any 2)

(14)

- a. Write a note on color CRT.
- b. What is meant by the slope of a line? Explain its types. Also, derive the slope-intercept form of a line.
- c. Differentiate between the VecGen and Bresenham's line drawing algorithms. Explain the VecGen line drawing algorithm in detail.

Q. 4. Answer the following in detail (Any 2)

(14)

- a. Differentiate between the Winding Number method and the Even-Odd method for checking whether a point is inside a polygon. Explain the method that is appropriate for self-overlapping polygons in detail.
- b. What are the advantages of scan line fill over flood fill? Explain Scan line fill algorithm in detail.
- c. What is a polygon? What are its types? How is a polygon represented?

Q. 5. A. Perform following Transformation (Any 2) (08)

- a. Derive a single matrix for shifting object 3 units down and 2 units right then rotate the object 90° clockwise and uniform scaling of an object by scale factor of 2.
- b. Derive a single matrix for uniform scaling of an object by scale factor of 2 then rotate the object 30° anti clockwise.
- c. Derive a single matrix to scale the object 2 times in X-direction and 3 times in Y-direction. Translate it 3 units left.

Q. 5. B. Answer the following in detail (Any 1) (06)

- a. Explain rotation with respect to a pivot point using a triangle step by step.
 - b. Write a note on shearing transformation.
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