



## Computer Graphics (1040)

P. Pages : 2

Time : Three Hours

Max. Marks : 100

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answer sheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Solve **any two** sub questions from each unit.
3. Draw neat diagram wherever necessary.

### UNIT - I

1. a) Write and explain DDA line drawing algorithm. Consider the line from (0,0) to (-6, -6) use DDA's algorithm to rasterize this line. **10**  
b) Define aliasing and antialiasing. List and explain various antialiasing techniques in brief. **10**  
c) Write a short note on. **10**
  - i) Cathode ray tube
  - ii) Color CRT monitor.

### UNIT - II

2. a) Write a short notes on **10**
  - a) Run length encoding
  - b) Cell encoding.
- b) Define polygon filling. Write and explain scan line polygon filling algorithm. **10**
- c) Give the definition of segment. What are the advantages of using segmentation ? Explain segment table with its data structure. **10**

**UNIT - III**

3. a) Derive the transformation matrix for rotation about any point in 2D. **10**
- b) Find a transformation of triangle A (1,0), B (0,1) and C (1, 1) by **10**
- i) Rotating  $45^\circ$  about the origin and then translating by one unit in x and y direction.
- ii) Translating one unit in x and y direction and then rotating  $45^\circ$  about the origin.
- c) Explain Rotation about arbitrary axis in 3D. **10**

**UNIT - IV**

4. a) Explain Sutherland and Cohen subdivision line clipping algorithm in detail. **10**
- b) Explain various 3D viewing parameters. **10**
- c) Write a short note on parallel projection. **10**

**UNIT - V**

5. a) Explain color models with suitable diagram. **10**
- b) Explain Gourand shading algorithm in detail. **10**
- c) Write a short note on **10**
- i) Graphics Applications
- ii) Bezier curve.

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