



U-3781

Third Year B. C. A. (Sem. VI) Examination

February/March - 2012

601 : Computer Graphics

(New)

Time : Hours]

[Total Marks : 70

Instructions :

(1)

नीचे दशांशवले निशानीवाणी विगतो उत्तरवही पर अवश्य लपवी. Fillup strictly the details of signs on your answer book.		Seat No. :
Name of the Examination :		<input type="text"/>
T. Y. B. C. A. (Sem. 6)		<input type="text"/>
Name of the Subject :		<input type="text"/>
601 : Computer Graphics (New)		<input type="text"/>
Subject Code No. :	<input type="text" value="3"/> <input type="text" value="7"/> <input type="text" value="8"/> <input type="text" value="1"/>	Section No. (1, 2,.....) :
		<input type="text" value="NIL"/>
		Student's Signature

(2) Marks are indicated to the right side of question.

- 1 Answer the following in short : (any four) 12
- Derive a matrix with an example to increase height twice of the original image, rotate it in clock-wise direction with an angle  $30^\circ$  about the origin and shift right 2 unit (Take  $\sin 30^\circ = 0.5$  and  $\cos 30^\circ = 0.866$ ).
  - What is transformation ? Explain it's significance.
  - Explain structure of display file with proper illustration.
  - Differentiate between convex and concave polygon.
  - Explain types of caps for thick line segment.
  - Define gentle and sharp slope of a line segment.
  - Explain advantages of DVST.

- 2 (a) Write and explain VECGEN algorithm. Also give its limitation. 7

OR

- Discuss the geometry of line. Calculate slope of line having two points P1 (4, 5) and P2 (8, 6) on line.
- Explain color CRT in detail. Also discuss working of Refresh CRT. 6

OR

- Explain digital differential analyzers algorithm.
- Explain scan-line polygon fill method. 3

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[Contd...

3 (a) Discuss the inside test method which work efficiently with overlapped polygon. 7

(b) Explain Fractals in detail. Also discuss types of animations. 6

OR

(b) Discuss the concept of filling polygon. Describe the related algorithm. 3

(c) Explain rotation about Homogeneous Coordinates. 3

4 (a) Explain rotation of a square at arbitrary point. Give appropriate coordinates and explain the rotation steps. 7

OR

(a) Consider a triangle having vertices P1 (4, 7), P2 (6, 9), P3 (8, 9) scale the object at 200% of original size and perform rotation of 90° in anti clock wise direction about origin. 6

(b) Compare Bresenham's algorithm with DDA algorithm. What is advantages with DDA algorithm ?

OR

(b) Discuss bitmap method. Discuss the process of removing aliasing error. 3

(c) Explain types of joints and how to generate thick line ? 3

5 Write detailed note on following : (any two) 10

(a) Boundary Fill Algorithm

(b) Homogeneous Coordinates

(c) Vector Vs Pixel Graphics

OR

(a) Discuss the geometry of line. Calculate slope of line having two points P1 (4, 5) and P2 (8, 5) on line.

(b) Explain color CRT in detail. Also discuss working of Refresh CRT.

OR

(b) Explain digital differential analyzer algorithm.

(c) Explain scan-line polygon fill method.