



**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 दृशविले निशानीवाणी विगतो उत्तरवडी पर अवश्य लभवी. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/>
<input type="text" value="T. Y. B. C. A. (Sem. 6)"/>	<input type="text"/>
Name of the Subject :	<input type="text"/>
<input type="text" value="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"/>	<input type="text"/>
Section No. (1, 2,.....) : <input type="text" value="NIL"/>	<input type="text"/>
	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

- 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 ?
- 5 Write detailed note on following : (any two) 10  
(a) Boundary Fill Algorithm  
(b) Homogeneous Coordinates  
(c) Vector Vs Pixel Graphics