



MC-3793

Third Year B. C. A. (Sem. VI) Examination  
September / October – 2013  
601 - Computer Graphics

Time : 3 Hours]

[Total Marks : 70

Instructions :

(1)

नीचे दशांशों के निशानों के विगतो उत्तरवर्दी पर अवश्य लक्ष्मी. 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	<input type="text"/>
Subject Code No. : <input type="text" value="3"/> <input type="text" value="7"/> <input type="text" value="9"/> <input type="text" value="3"/>	Section No. (1, 2,.....) : <input type="text" value="NIL"/>
	Student's Signature

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

1 Answer following : (any five) 15

- Consider raster system having resolution of 100 pixels in each direction. Display area is  $12 \times 9$  inches. What size of frame buffer in KB is needed for this system to store 20 colors/pixel ?
- Suppose an RGB system is designed using 8 inch  $\times$  10 inch screen with a resolution of 100 pixel per inch in each direction. If we want to store 6 bits/pixel in the frame buffer, how much storage (in bytes) do we require for the frame buffer ?
- Discuss the traditional ways of Animation.
- What is difference between pixel and vector Graphics ?
- What is difference between translation and transformation of an object ?
- How to shear an object by scaling and rotation only ?
- What is identity matrix ?

2 Write note on following : (any three) 21

- Rotation of an object relative to an origin. Explain clockwise and anti-clockwise rotation by deriving matrix.

MC-3793]

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[Contd...

- (b) What is difference between inverse transformation and viewing transformation ?
- (c) Discuss the geometry of perpendicular lines.
- (d) What is functional difference between Bresenham's Algorithm and DDA algorithm ?
- (e) Discuss the process of “turning on” the pixels for a line segment.

3 (a) What is frame buffer ? How to display frame buffer ? 8

OR

- (a) Discuss the inside test for the polygon. 8
- (b) Discuss the application areas of entertainment where the computer graphics is applied. 7

OR

(b) Discuss the structure of Monochrome and color CRT. 7

4 (a) Write note on pattern filling algorithm for polygon. 7

OR

- (a) What is difference between windowing and clipping ? How to clip an object ? 7
- (b) Describe pointing devices. 7

OR

(b) Write note on VECGEN algorithm. 7

(c) Prove that :

(i) Two scaling transformation commute. 3  
(i.e.  $S_1 \cdot S_2 = S_2 \cdot S_1$ )

(ii) Prove that two, two dimensional rotations about the origin commute : 2  
(i.e.  $R_1 R_2 = R_2 R_1$ )