J-3793-R

Third Year B. C. A. (Sem. VI) Examination
January – 2013
601 : Computer Graphics

Time : Hours]   [Total Marks : **70**

Instructions :

(1)

નીચે દર્શાવેલ ← નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ← signs on your answer book.

Name of the Examination :

← **T. Y. B. C. A. (SEM. 6)**

Name of the Subject :

← **601 : COMPUTER GRAPHICS**

← Subject Code No. : **3 7 9 3** ← Section No. (1, 2, ...) : **Nil**

Seat No. :

Student's Signature

(2)   Marks are indicated to the right side.

1   Answer following : (any **seven**)   **14**

   (a)   Which are the traditional ways of animation ?

   (b)   What are Pixel and Vector Graphics ?

   (c)   Define concave and convex polygon.

   (d)   List Merits and Demerits of DDA.

   (e)   What is shearing ? How to shear an object by scaling and rotation only ?

   (f)   What is morphing ?

   (g)   Derive the equation of line using pair of points (8, 3) and (-8, 3). Find slope and intercept of line.

   (h)   Define frame Buffer and Pixel.

2   Write notes on following : (any **three**)   **21**

   (a)   Refresh CRT and LCD

   (b)   Fractals

   (c)   Polygon Filling Algorithm

   (d)   Rotation about an arbitary point

   (e)   Homogeneous Coordinates and Translation

J-3793]   1   [Contd...

3 (a) Explain rotation of an object relative to an arbitary point. How it is different from rotation about an origin ? Give appropriate example. **8**

OR

(a) Discuss pattern filling of a polygon. Give appropriate examples. **8**

(b) Discuss inverse transformation. **7**

OR

(b) Discuss viewing transformation. **7**

4 (a) What is image compression ? Explain any two image compression techniques. **6**

OR

(a) Define circle, eclipse and major axis of eclipse. **6**

OR

(a) Discuss DDA algorithm. **6**

(b) Discuss line generation algorithm. Also write note on different line styles. **6**

OR

(b) Discuss process of animation. **6**

(c) Answer following : (any two) **8**

   (i) Show how reflections in the line y = x and in the line y = −x can be performed by a scaling operation followed by a rotation.

   (ii) Give a single 3×3 homogeneous coordinate transformation matrix which translate down 1/2 unit, right 1/2 unit and then rotate counter clock wise by $\pi/4$.

   (iii) Give a 3×3 homogeneous-coordinate transformation matrix for following translation :

   (a) Move object down 1/2 unit and right 1 unit

   (b) Scale y coordinate to make twice as tall, rotate clock wise by $\pi/6$.

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