

Registration No. :

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Total number of printed pages – 2

B. Tech
BCSE 3401

Seventh Semester (Special) Examination – 2013

COMPUTER GRAPHICS AND MULTIMEDIA

BRANCH : CSE, IT

QUESTION CODE : D 394

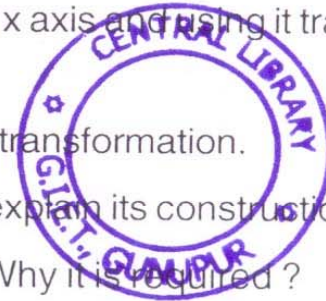
Full Marks – 70

Time – 3 Hours

Answer Question No. 1 which is compulsory and any **five** from the rest.

The figures in the right-hand margin indicate marks.

1. Answer the following questions : 2 × 10
 - (a) What is CAD and how graphics is used here ?
 - (b) Differentiate between Raster-Scan and Random-Scan display.
 - (c) How the screen position is selected in a touch panel ? Explain its working.
 - (d) Give the transformation for 2D reflection along x axis and using it transform a triangle with vertices (1,0), (5,0) and (2,3).
 - (e) Give the matrix format of a window-to-viewport transformation.
 - (f) What is a random fractal ? Give example and explain its construction.
 - (g) What is the knot vector in a B-spline curve ? Why it is required ?
 - (h) Differentiate between backface detection method and depth buffer method.
 - (i) Give the equation for combining diffuse and specular reflection from multiple light sources. Explain the terms.
 - (j) Differentiate between kinematics and dynamics.
2.
 - (a) Give an account of various applications of computer graphics. 5
 - (b) How an image drawing command can display the image in a raster scan display device ? Explain using the block diagram. 5



P.T.O.

3. (a) Write an Bresenham's circle drawing algorithm and using it draw a circle with radius 6 using centre point (0,0). 5
- (b) Rotate a polygon with vertices (1,1), (5,1), (5,4), (3,6), (1,5) through 60° anticlockwise. Use rotation transformation to draw the initial polygon with the rotated one. 5
4. (a) How do you create composite transformation for scaling by half and translation in x axis by 10 units ? Use homogeneous coordinates for this purpose. 5
- (b) What is Sutherland Hodgemen Algorithm for polygon clipping ? Explain using an example. 5
5. (a) What is a B-spline curve ? How to draw a uniform periodic B-spline curve ? Explain. 6
- (b) What is fractal dimension ? How the fractal dimension of a fractal can be measured ? Explain using an example. 4
6. (a) What are the various dithering techniques ? Explain using example. 5
- (b) Give an account of basic illumination models. 5
7. (a) How depth buffer algorithm can be extended to A-buffer ? Explain. 5
- (b) How Gouraud technique can be used for surface rendering and shading ? How it will differ from Phong shading ? 5
8. Write short notes on any **two** of the following : 5×2
- (a) Anti aliasing
- (b) Deterministic fractals
- (c) Polygon rendering methods.

