Registration No. :

Total number of printed pages – 2

Seventh Semester Regular Examination – 2014

COMPUTER GRAPHICS

BRANCH(S) : AEIE, BIOMED, CIVIL, EC, ETC, IT

QUESTION CODE : H 288

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 do you mean by text clipping ?

   (b) Differentiate between parallel and perspective projection.

   (c) What is dithering ?

   (d) List any four animation techniques.

   (e) What is the use of fractals in graphics applications ?

   (f) Which shading method is faster and easier to calculate ? Why ?

   (g) What are the advantages of B spline over Bezier curve ?

   (h) Define rendering.

   (i) Differentiate between flat and smooth shading.

   (j) Differentiate between window and view port.

2. (a) Explain the Cohen Sutherland line clipping algorithm. 5

   (b) Calculate the pixel location approximating the first octant of a circle having center at (4, 5) and radius 4 units using Bressenham's algorithm. 5

3. (a) Discuss in brief the antialiasing techniques. 5

   (b) Explain two dimensional translation and scaling with an example. 5

4. (a) Obtain the transformation matrix for rotating an object about a specified pivot point. 5

(b) Discuss in brief about raster scan and random scan systems. 5

5. (a) Explain Gouraund shading technique and write the deficiencies in that method and how it is rectified using Phong shading technique. 5

(b) Explain how to add texture to faces. 5

6. (a) With suitable examples, explain the 3D transformations. 5

(b) A polygon has four vertices A (20, 10), B (60, 10), C (60, 30), D (20, 30). Calculate the vertices after applying a transformation matrix to double the size of polygon with point A located at the same place. 5

7. (a) Explain Seed Fill polygon filling algorithm with suitable example. 5

(b) What is morphing ? Explain with example. 5

8. Explain the following terms in brief : 2.5 × 4

(a) DDA line drawing algorithm

(b) Illumination models

(c) A - Buffer

(d) Input output virtual reality devices.