Registration No. : | | | | | | | | | | |

*Total number of printed pages – 2*

B. Tech

PCCS 4401

# Seventh Semester (Special) Examination – 2013

## COMPUTER GRAPHICS

### BRANCH : AEIE, CIVIL, EC, ETC, IEE, IT

### QUESTION CODE : D 431

**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 persistence of phosphor ?

   (b) Define the term resolution.

   (c) Differentiate between parallel and perspective projection.

   (d) Write the rotation matrix in form of homogeneous coordinate system.

   (e) Write the name of two different clipping algorithm.

   (f) Write the difference between flood-fill and boundary fill algorithm.

   (g) Define half toning.

   (h) What is the difference between a bitmap and a pixel map ?

   (i) Write the difference between Gouraud and Phong shading.

   (j) What do you mean by dithering ?

2. (a) Write DDA line drawing algorithm. 5

   (b) Write midpoint ellipse drawing algorithm. 5



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3. (a) Derive the matrix representation for two dimensional transformation translation, scaling and rotation in homogenous coordinate system. 5

(b) Prove that two successive rotations is commutative. 5

4. Write Sutherland-Hodgeman polygon clipping algorithm with example. 10

5. (a) Define a B-spline. Write the characteristic of B-spline. 5

(b) Distinguish between parallel and perspective projections. 5

6. (a) Write Z-buffer algorithm for hidden surface removal. 5

(b) What do you mean by shading? Explain Gourad shading. 5

7. (a) Explain basic illumination model in details. 5

(b) Explain the difference between JPEG and MPEG standard. 5

8. Write short notes on any **two** of the following : 5×2

(a) Scan conversion

(b) Composite transformation

(c) Keyframe animation

(d) Fractals.