Roll No. | | | | | | | | | | | | | **Total No. of Pages : 02**

Total No. of Questions : 07

BCA (2014 to 2018)/B.Tech.(CSE) (Sem.–6)

COMPUTER GRAPHICS

Subject Code : BSBC-602

M.Code : 71211

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains SIX questions carrying TEN marks each and a student has to attempt any FOUR questions.**

SECTION-A

1) Answer briefly :

a) Consider a raster system the resolution of 1024 × 768.How many pixels are accessed per second by a display controller that refresh the screen at the rate of 30 frames per second.

b) What is normalized coordinate system?

c) What is viewport and window?

d) Give the matrix representation for 3D rotation about z axis.

e) What is parallel projection?

f) Discuss Raster scan display.

g) How a colored pixel is represented in memory?

h) What is the basic principle of flood fill algorithm?

i) What is underlying principle of midpoint circle algorithm?

j) What is scan conversion? Give suitable example.

SECTION-B

2) How a circle is plotted with the midpoint circle algorithm?

3) Discuss in brief :

   a) Shadow mask

   b) Beam penetration color generation techniques in computer graphics

4) Write short notes on :

   a) Flood fill algorithm

   b) Effect of scan conversion

5) What are normalized and device coordinates? Find the normalization transformation from the window whose lower left corner is at (0, 0) and upper right corner is at (4,3) onto the normalized device screen so that aspect ratios are preserved?

6) Explain in detail various three dimensional geometric transformations along with matrices.

7) Using the origin as the center of projection derive the perspective transformation on to the plane passing through the point R_0 (x_o, y_0, z_0) having the normal vector $N = n_1 I + n_2 J + n_3 K$

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.