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Roll No.

MCA
(SEM. V) THEORY EXAMINATION 2018-19
COMPUTER GRAPHICS AND ANIMATION

Time: 3 Hours *Total Marks: 70*

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **2 x 7 = 14**

a. Define the resolution of an image.
b. Can a 5X3½ inch image be presented at 6X4 inch without any geometric distortion?
c. What do you mean by transformation?
d. Define cavalier projection.
e. What do you understand by image processing?
f. Discuss positively oriented polygon.
g. What is story board?

SECTION B

2. Attempt any *three* of the following: **7 x 3 = 21**

a. Write the steps required to plot a line whose slope is between -45^0 and 45^0 using DDA algorithm.
b. Magnify the triangle with vertices A(0,0), B(1,1), and C(5,2) to twice its size while keeping C(5,2) fixed.
c. Align the vector V=I+J+K with vector K.
d. Discuss back-face removal algorithm.
e. Write short note on morphing.

SECTION C

3. Attempt any *one* part of the following: **7 x 1 = 7**

(a) Write the steps required to scan-convert a circle using Bresenham's method.
(b) Discuss random scan graphics displays.

4. Attempt any *one* part of the following: **7 x 1 = 7**

(a) Derive the transformation that rotates an object Θ^0 about the origin. Write matrix representation for this situation.
(b) Describe the transformation M_L which reflects an object about the line L.

5. Attempt any *one* part of the following: **7 x 1 = 7**

(a) How can scaling with respect to a point $P_0(x_0,y_0,z_0)$ be defined in terms of scaling with respect to the origin.
(b) Discuss composite transformations in 3D.

6. Attempt any *one* part of the following: **7 x 1 = 7**

(a) Let R be the rectangular window whose lower left hand corner is at L(-3,1) and upper right hand corner is at R(2,6). Find the region codes for the endpoints A(-4,2), B(-1,7), C(-1,5), D(3,8), E(-2,3), F(1,2), G(1,-2), H(3,3), I(-4,7), J(-2,10) for the lines AB, CD, EF, GH, and IJ.
(b) Discuss Cohen-Sutherland algorithm for line clipping with example.

7. Attempt any *one* part of the following: **7 x 1 = 7**

(a) Explain design of animation sequences.
(b) Discuss various problems in animation,