

Seat No. : _____

ND-149
December-2015
T.Y. M.Sc., (CA & IT)
Computer Graphics

Time : 3 Hours]

[Max. Marks : 100

1. (a) Attempt the following : (any **four**) **16**
- (1) Write short note on Refresh CRT.
 - (2) Differentiate between Raster scan display and Random can display.
 - (3) Write the Bresenham line drawing algorithm and calculate the points for line having two endpoints (20, 10) and (30, 18).
 - (4) Explain Colour CRT.
 - (5) Write short note on LCD.
- (b) Attempt the following : **4**
- (1) Persistence
 - (2) Aspect Ratio
 - (3) How much refresh rate require to avoid the flicker ?
 - (4) Refresh buffer
2. Attempt the following : **20**
- (1) Explain Attributes of line, caps and joints.
 - (2) Explain the character generation techniques and write the procedure for setcharup and dochar.
 - (3) What are the homogeneous co-ordinates ? Explain matrix representation of Homogeneous co-ordinates for 2-D Rotation.
 - (4) Explain the scaling of the object and scale the object $1/2$ and $3/2$ with respect to x and y direction respectively.

3. Attempt the following : **20**

(1) Explain display file. Derive the object representation for following co-ordinates :

X \longrightarrow [0.1, 0.0, 0.1, 0.0, 0.3, 0.0, -0.4]

Y \longrightarrow [0.1, 0.3, 0.0, -0.1, 0.0, -0.1, 0.0]

(2) Explain the inside-outside tests for polygon filling.

(3) Explain polygon filling methods and write the procedure for load the polygon and fill polygon.

(4) Explain the reflection and shear with the matrix representation.

4. Attempt the following : **20**

(1) What is clipping ? Describe the Liangbarsky line clipping algorithm.

(2) What are the segments ? Write the procedure for creating and deleting segments.

(3) What is viewport ? Explain window to viewport co-ordinate transformation.

(4) Write the Sutherland Hodgeman polygon clipping algorithm.

5. Attempt the following : **20**

(1) Explain the Parallel Projection and Perspective Projection.

(2) Write short note on surface rendering and visible and surface identification.

(3) Explain 3-Dimensional viewing pipeline.

(4) Explain Depth Cueing and exploded cutaway views.
