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MCS-053

**MASTER OF COMPUTER
APPLICATIONS (MCA) (REVISED)**

Term-End Examination

June, 2024

**MCS-053 : COMPUTER GRAPHICS AND
MULTIMEDIA**

Time : 3 Hours

Maximum Marks : 100

Note : (i) *Question No. 1 is compulsory.*

(ii) *Answer any **three** questions from the
rest.*

1. (a) Differentiate between the following :

5×3=15

(i) Raster Scan display devices and
Random scan display devices.

P. T. O.

- (ii) Scan line polygon fill algorithm and flood fill algorithm.
- (iii) Painting Drawing.
- (b) Differentiate between parallel projection and perspective projection. Determine the projection of point $P(x, y, z)$ on $Z = 0$ plane, provided the center of projection is at $Q(0, 0, -d)$. 10
- (c) What is animation ? Write down its various types. 5
- (d) What is Bezier curves ? Write the properties of Bezier curves. 5
- (e) Explain the technique of Anti-Aliasing with suitable example. 5
2. (a) Write down the DDA algorithm for generation of line segment. Draw line segment from point (2, 4) to (9, 9) using DDA algorithm. 10

- (b) Write Mid-point circle generation algorithm. Given a circle of radius $r = 5$, determine points on the arc of the circle in first quadrant from $x = 0$ to $x = y$. 10
3. (a) Write 3D transformation matrix in Homogeneous coordinate system for translation, Rotation, Scaling, and shear operations. 10
- (b) What is composite transformation ? Is the sequence of transformation commutative in nature ? Justify with suitable example. 5
- (c) Explain Sutherland Hodgman polygon clipping algorithm with suitable example and diagram. 5
4. (a) Write 3-buffer algorithm for hidden surface detection and explain it. Also, give its advantages and disadvantages of Z-buffer. 10
- (b) What are parametric continuities ? Discuss each type of parametric continuity. 5
- (c) Briefly discuss the term Hypermedia. How is it different from Hypertext. 5

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5. Explain the following :

4×5=20

- (a) Stair-Case effects
- (b) Authority tools
- (c) Ray Tracing
- (d) Frame Buffer for Intensity Control
- (e) Video File format

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