No:_____ Enrollment No:_____

PARUL UNIVERSITY
FACULTY OF IT & COMPUTER SCIENCE
MCA/M.Sc.IT 2024-25 Mid-Term Examination

ester: 2 **Date: 12 - 03 - 2025**
ject Code: 05201330 / 05202182 **Time: (1hr:30min)**
ject Name: Computer Graphics **Total Marks: 40**

tructions:
'igures to the right indicate full marks.
Make suitable assumptions wherever necessary.

Q.1 **Answer the following.** [10]

a) 3 short questions of 1 mark each [3]

1. How does antialiasing improve visual quality in graphics?
2. Define viewport in the context of graphical display.
3. Define multimedia in the context of digital content.

b) Objective type/MCQs/True-False/Fill in blanks [7]

1. In a raster scan, the frame buffer is continuously read to refresh the _____.
2. What does DDA stand for in the context of line-drawing algorithms?
   (A) Digital Differential Analysis (C) Direct Digital Animation
   (B) Digital Differential Algorithm (D) Direct Drawing Algorithm
3. What does the term "viewport" refer to in computer graphics?
   (A) The entire area of the display screen.
   (B) A rectangular area where the window's content is displayed.
   (C) The original coordinates of the object before transformation.
   (D) The process of rendering a scene in 3D.
4. To combine multiple transformations such as rotation, scaling, and translation into a single transformation is called _____.
5. If you want to adjust the properties of an object on the stage, _____ panel would you use?
6. **True/False:** Scan line filling works by processing one horizontal line at a time to determine which pixels should be filled inside a polygon.
7. **True/False:** The normalized view volume is always a rectangular box, regardless of the projection type used.

Q.2 **Answer the following.** (2 or 3 mark questions) [10]

(a) Two Questions of 2 Marks [4]

1. Explain what is meant by viewport clipping. (02)
2. Explain the difference between boundary fill and flood fill algorithms. (02)

(b) Two Questions of 3 Marks [6]

1. How would you implement a circle drawing algorithm using the mid-point algorithm? (03)
2. Analyse how geometric transformations such as scaling and rotation affect the position of a graphical object. (03)

Q.3 **Attempt any TWO.** [10]

1. Given a polygon defined by its vertices, outline the steps to implement the scan line filling algorithm to fill it with color. (05)
2. Demonstrate how Bresenham's algorithm can be used to draw a line from (1, 1) to (5, 4). (05)
3. Analyse the steps to create a basic masking effect in Flash. What types of objects should be used for effective masking? (05)

Q.4 **Answer the following.** [10]

(a) Provide a step-by-step explanation and analyse how to implement a simple line drawing algorithm using Bresenham's method. (05)

(b) Design an animation using shape motion tweening where a square smoothly transforms into a circle. What key steps are involved? (05)

OR

(b) Demonstrate how to create a smooth motion tween to move an object from left to right. What key steps are involved? (05)