

11. What are the geometric transformation and how these are useful computer graphics applications ? Discuss the different geometric transformation in detail.
12. Use the Cohen–Sutherland algorithm to clip two lines P1 (40, 15)-P2(75, 45) and P3(70, 20)-P4(100, 10) against a window A(50, 10),B(80,10),C(80, 40), D(50,40).
13. Explain the following reflection in brief :
- (i) Reflection of an object about the x-axis
 - (ii) Reflection of an object about the y-axis
- Reflection axis as the diagonal line $y = x$.

MCA–301

December – Examination 2023
MCA (IIIrd Year) Examination
COMPUTER GRAPHICS
Paper : MCA-301

Time : 3 Hours]

[Maximum Marks : 80

Note :- The question paper is divided into three Sections A, B and C. Write answers as per the given instructions.

Section–A

8×2=16

(Very Short Answer Type Questions)

Note :- Answer all questions. As per the nature of the question delimit your answer in one word, one sentence or maximum up to **30** words. Each question carries 2 marks.

1. (i) Briefly describe about use of Computer Graphics.

- (ii) What is Pixel ?
- (iii) List any *two* differences between raster and random scan.
- (iv) Name any two Software Animation Tools.
- (v) What is the Aspect Ratio ? Give one example.
- (vi) List any *four* types of Curves.
- (vii) What is specular reflection ? Give an example.
- (viii) State the concept of Interpolation.

Section-B **4×8=32**

(Short Answer Type Questions)

Note :- Answer any *four* questions. Each answer should not exceed **200** words. Each question carries 8 marks.

- 2. Consider the line from (5, 5) to (13, 9). Use the Bresenham's algorithm to rasterize the line.
- 3. Discuss the mid-point circle generation algorithm in detail.
- 4. Explain in detail YIQ color model.

- 5. What is the difference between parallel and perspective projections ? Discuss each in detail.
- 6. Describe the z-buffer algorithm for visible surface detection with a suitable example.
- 7. Explain the Beam Penetration and Shadow Mask strategies in CRT monitors.
- 8. Explain the procedure to fill polygon using Flood fill with suitable examples.
- 9. Explain basic 3D transformations with suitable examples.

Section-C **2×16=32**

(Long Answer Type Questions)

Note :- Answer any *two* questions. You have to delimit your each answer maximum up to **500** words. Each question carries 16 marks.

- 10. What is window-to-view point coordinate transformation ? What are issues related to multiple windowing ?