11. Write short notes on the following :

(a) Antialiasing

(b) Coordinate System

12. Explain the Sutherland Hodgeman Algorithm for polygon clipping with an example.

13. Apply the Shearing Transformation to square with A(0, 0), B(1, 0), C (1, 1) and D(0, 1) as given below :

(i) Shear parameter value of 0.5 relative to the line Yref = –1;

(ii) Shear parameter value of 0.5 relative to the line Xref = –1.

MCA–301

June – 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 Bezier Curve.

(ii) What is the Diffuse Reflection ?

(iii) List the applications of Computer Graphics.

(iv) Name any *two* Hardware Animation Tools.

(v) What do you mean by Graphics API ? Name any *two* Graphics API.

(vi) What do you mean by Beam Penetration Method ?

(vii) What is the purpose of a frame buffer in a Display System ?

(viii) How do you define Intensity ?

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 (0, 0) to (4, 6). Use DDA algorithm to rasterize his line.

3. Differentiate between Oblique and Orthogonal Projection.

4. Explain RGB Model. Also, explain the relationship between RGB Color Model and CMY Color Model.

5. Explain the working of a random scan display system with suitable diagram.

6. Derive an equation for window to viewport transformation by specifying the sequence of basic transformations involved.

7. Describe in detail the depth buffer visible surface detection technique. Derive the equation to find the depth values for a surface position (x, y).

8. What is Edge Detection ? Explain any *one* edge detection technique in digital image processing.

9. Briefly explain the steps involved in clipping a line using Mid-point subdivision algorithm.

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. Describe the process of image compression in multimedia systems. Discuss the commonly used image compression techniques and their advantages and disadvantages.