8. Write notes on the following : **15**

(a) B-spline curve

(b) Fractals

(c) Coefficient of reflection and halfway vector

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DD681

M.C.A. EXAMINATION, May 2019

(Fourth Semester)

(B. Scheme) (Main & Re-appear)

MCA502

COMPUTER GRAPHICS

Time : 3 *Hours*] [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Indicate which raster location would be chosen by Bresenham's algorithm when scan-converting a line from pixel coordinate (1, 1) to pixel coordinate (8, 5). **8**

(b) Write the step required to plot a line whose slope is between 0° and 45° using the slop-intercept equation. **7**

2. Explain the architecture of Raster Scan Display. Give the various applications of computer graphics. **15**

Unit II

3. (a) Perform a 45° rotation of triangle A(0, 0), B(1, 1), C(5, 2) :

(i) About the origin

(ii) About P(–1, –1) **8**

(b) Write the general form of a 3D scaling matrix with respect to a fixed point P(h, k). **7**

4. Derive the window-to-viewport transformation matrix :

(a) First translating window to viewport then scaling the window to the size of the viewport. **8**

(b) First scaling the window to the size of the viewport then translating window to viewport. **7**

Unit III

5. Explain the various types of projections. Provide some examples of oblique projection. **15**

6. Write notes on the following : **15**

(a) Z-buffer algorithm

(b) Scanline algorithm

Unit IV

7. (a) Explain Bezier method of curve drawing. **8**

(b) Describe methods of polygon shading. **7**