MCA-301

December - Examination 2019

MCA 3rd Year Examination

Computer Graphics

Paper - MCA-301

Time : 3 Hours]   **[Max. Marks :- 80**

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

Section - A $8 \times 2 = 16$
(Very Short Answer Questions)

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

1.   i.   What is the need for a graphics device driver?

      ii.   What is the difference between pointing and positioning devices?

      iii.   Convert given color value to CMY color mode where R = .4 G =.21 B = .44?

      iv.   What is the role of computer graphics in animation?

      v.   Why the homogeneous coordinates are used?

      vi.   What is the scan line algorithm?

      vii.   Explain screen and world coordinates with examples.

      viii.   List any two input devices for graphics.

Section - B $4 \times 8 = 32$
(Short Answer Questions)

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

2. Write short notes on :
   a. Raytracing

   b. Gourard and Phong shading

3. Explain the steps in the Z-buffer algorithm.

4. What is a curve interpolation? As far as Splines are concerned, what do Hermite, Bezier and B-Splines curves indicate?

5. With suitable examples explain all 3D transformations.

6. Describe the functionalities of Direct View Storage Tube with suitable diagram.

7. What is the difference between boundary fill and flood-fill algorithms? Explain in brief.

8. What is function of image scanning in graphics? Discuss types of graphs.

9. Explain in detail different illumination methods and different Rendering methods

Section - C $2 \times 16 = 32$
(Long Answer Questions)

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

10. Give the DDA line drawing algorithm. Explain with suitable example.

11. Derive a simple illumination model. Include the contribution of Diffuse, ambient and specular reflection. What are the various logical graphics input primitives?

12. a. Give the introduction of a rendering technique for generating an image from 2D models.

   b. What is the significance of formula in computer graphics Fractals?

13. Explain the algorithm for drawing a circle with example.

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