[This question paper contains 2 printed pages]

Your Roll No

6127A **J**

MCA/II Sem.

Paper MCA–203—Computer Graphics

(Old Course)

Time 3 *Hours* *Maximum Marks* 60

(Write your Roll No on the top immediately on receipt of this question paper)

Attempt **all** *questions*

Attempt **all** *parts of a question together*

1 Derive the equations necessary for scan converting a circle using mid-point algorithm 7

2 Describe Cyrus-Beck algorithm for clipping a line in a rectangular polygon 7

3 (a) What do you mean by perspective and parallel projection ? 2

(b) Derive the transformation matrix for perspective projection onto the plane Z = *d* with centre of projection at origin of the axes viz (0, 0, 0) 6

(c) Give the characteristics of a fractal. 4

4 (a) What are the geometric conditions for Bazier & Hermite splines ? Explain each 3

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(b) Derive the conditions for having first order continuity at the joining point of two sections of Bezier Cubic Curves 4

5 (a) Define Diffuse and Specular reflections Give the combined diffuse and specular reflections intensity equation for a single point source of light 4

(b) Derive the composite transformation matrix for the following operations in the given sequence scaling, rotation, translation about origin 5

6 (a) Explain Phong's shading model How is it better than Gourand shading model ? 6

(b) Explain the CIE color model alongwith chromaticity diagram 6

7 Write the characteristics of representation schemes for valid folids 6