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MCS-053

MCA (Revised)

Term-End Examination

December, 2017

07170

MCS-053 : COMPUTER GRAPHICS AND MULTIMEDIA

Time : 3 hours *Maximum Marks : 100*

Note : *Question number **1** is **compulsory**. Answer any **three** questions from the rest.*

1. (a) Explain DDA algorithm. What are its drawbacks ? How are they overcome in Bresenham's algorithm ? *5*

(b) Explain the Cyrus-Beck line clipping algorithm. *5*

(c) Find the form of matrix for reflection about a line L with slope m and y intercept (0, b). *5*

(d) Define tilting as a rotation about x-axis followed by a rotation about y-axis. Find the tilting matrix. *5*

(e) Differentiate between orthographic and oblique projections. *5*

(f) Differentiate between diffused and specular reflections. *5*

(g) Write a short note on basic ray tracing algorithm. 5

(h) Differentiate between lossy and lossless compression. 5

2. (a) Write midpoint circle drawing algorithm. Use it to draw a circle C having centre (5, 2) and radius = 10. 10

(b) Explain the scanline polygon filling algorithm. 5

(c) Explain the Sutherland-Hodgman polygon clipping algorithm. 5

3. (a) Magnify the triangle with vertices A(0, 0), B(1, 1) and C(5, 2) to twice its size while keeping C(5, 2) fixed. 10

(b) Find a transformation A_v which aligns a given vector V with the vector K along the positive Z-axis. 10

4. (a) Define Bezier curves. Also explain zero-order, one-order and two-order continuity (C_0, C_1 and C_2). 10

(b) Explain the Z buffer visible surface detection method. 5

(c) Discuss the advantages of Gouraud Shading Scheme over Constant Shading Scheme. 5

5. (a) What is animation ? How many frames does a 30-second animation film sequence with no duplication require ? *5*

(b) Discuss any two audio file formats that are used in multimedia. *5*

(c) What are the various types of graphic image formats ? What do you mean by grayscale image ? *5*

(d) Prove that two successive rotations are additive. *5*
