Code: 9F00404c

MCA IV Semester Supplementary Examinations May 2019

COMPUTER GRAPHICS

(For 2009, 2010, 2011, 2012 (LC), 2013, 2014, 2015 & 2016 admitted batches only)

Time: 3 hours Max. Marks: 60

Answer any FIVE questions
All questions carry equal marks
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1 (a) Discuss the use of computer graphics in education and training fields.
(b) Explain in brief about the following input devices:
(i) Joystick. (ii) Data glove. (iii) Mouse.

2 Devise and write an algorithm for generating a circle using mid-point circle algorithm. Demonstrate the algorithm for a circle of radius r = 10 and center at (0, 0).

3 (a) Devise and write an algorithm to scan convert the interior of a specified ellipse into a solid color.
(b) Show that the composition of two 2D rotations is additive.

4 (a) Compare the number of arithmetic operations performed in Cohen-Sutherland and Liang-Barsky line clipping algorithms for any two line orientations relative to a clipping window. Which is better? Justify your answer.
(b) Explain in brief about the 2D transformations between two coordinate systems.

5 Explain the Sutherland-Hodgeman polygon clipping algorithm (2D) with a suitable example.

6 (a) Define an efficient polygon representation for a cylinder. Justify your choice of representation.
(b) Determine the Bezier blending functions for five control points. Plot each function and label maximum and minimum values.

7 (a) Derive the 3D-transformation matrix for scaling an object by a scaling factor 'S' in a direction defined by the direction angles α, β & γ.
(b) Explain the depth-buffer method for visible surface direction.

8 Write short notes on the following:
(a) Computer animation languages.
(b) Design of animation sequences.
(c) Raster animations.

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