

Code: 9F00404c

MCA IV Semester Regular & Supplementary Examinations September/October 2014

**COMPUTER GRAPHICS**

(For students admitted in 2009, 2010, 2011 and 2012 only)

Time: 3 hours

Max Marks: 60

Answer any FIVE questions  
All questions carry equal marks

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- 1 (a) Describe following input devices with neat sketches:  
(i) Light pen. (ii) Joystick. (iii) Digitizer.  
(b) What are the different types of CRT display? Explain any one with neat sketch.
- 2 Explain Bresenham's line drawing algorithm with pseudo code. Extend this algorithm to draw thick line segment.
- 3 (a) Derive 2D transformation matrix for:  
(i) Reflection. (ii) Shearing. (iii) Scaling. (iv) Translation.  
(b) Define homogenous coordinates. What are the advantages of homogenous coordinate system?
- 4 Explain Cohen-Sutherland line clipping algorithm with example.
- 5 (a) Explain following quadric surfaces with suitable diagram:  
(i) Ellipsoid. (ii) Sphere. (iii) Elliptic cylinder.  
(b) Explain properties of Bezier & B-spline approximation.
- 6 Prove that the multiplication of 3D transformation matrix for each of the following sequence of operations is commutative.  
(i) Any two successive translations.  
(ii) Any two successive scaling.  
(iii) Any two successive rotations about any one coordinate axis.
- 7 Explain Depth Sorting algorithm with suitable diagram.
- 8 Define animation. Explain different methods of controlling the animation. Give different types of animation languages.

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