

(Please write your Exam Roll No.)

Exam Roll No. 015

END TERM EXAMINATION

THIRD SEMESTER [MCA] DECEMBER 2015

Paper Code: MCA 203

Subject: Computer Graphics

Time : 3 Hours

Maximum Marks : 60

Note: Attempt any five questions including Q.no.1 which is compulsory. Select one question from each unit.

- Q1. ~~a) What are the major application areas of computer graphics? (2x10=20)~~
~~b) Define the following:~~
 i) Pixel
 ii) Resolution
~~c) Explain aliasing and antialiasing.~~
~~d) What is the difference between window and viewport?~~
~~e) What is the condition of clipping point against a given rectangular window?~~
~~f) What is the basis function for B-spline?~~
~~g) Explain parametric continuity conditions.~~
~~h) What is View Confusion?~~
~~i) What is a vanishing point?~~
~~ii) Why homogeneous coordinate are used for transformation computation in computer graphics?~~

Unit-I

- Q2. a) Use Bresenham's method to derive decision parameter that can be used to generate straight line segment. (5)
 b) Develop a Bresenham's circle drawing algorithm for drawing a circular arc between 90° and 135°. (5)
- Q3. a) A square has apposite vertices (0,0), (4,4). Find the transformation to translate it in such a way that the centre of the square is shifted to the point (1,1). Further the transformation to scale the square uniformly in such a way that its area is four times the original size. (5)
 b) Explain pivot point rotation in detail. (5)

Unit-II

- Q4. a) Find the equation of Bezier Curve which through points (0,0) and (-2,1) and is controlled through points (7,5) and (2,0). (5)
 b) What is the difference between interpolation and approximation splines? (5)
- Q5. a) What do you mean by first and second order continuities? (5)
 b) List the various properties of Bezier curve. (5)

Unit-III

- Q6. a) Explain Cavalier and Cabinet projection. (5)
 b) Describe Boundary Representation. (5)
- Q7. a) Use the Cohen Sutherland algorithm to clip line P1 (90,30) and P2 (150,10) against a window lower left hand corner (70,15) and upper right hand. (5) → (100,40)
 b) Explain one point, two point and three point vanishing point. (5)

Unit-IV

- Q8. a) Derive the equation of a Reflection vector. (5)
 b) Explain Specular Reflection. (5)
- Q9. a) Discuss Phong Shading. (5)
 b) Explain Floating Horizon Method. (5)

