

Bachelor of Printing Technology
4th Year, 1st Semester Supplementary Examination, 2017
Computer Graphics

Full Marks: 100

Time : 3 Hr

ANSWER ANY FIVE(5).**ALL PARTS OF THE QUESTION SHOULD BE ANSWERED TOGETHER**

- Q 1) Write short notes on the following : (4 × 5 = 20)
- i. Raster Display devices
 - ii. Viewing pipeline
 - iii. Perspective and Oblique projections
 - iv. Vanishing Point
- Q 2) (a) What are the components of *rendering* ? (5)
- (b) What is *rendering* in computer graphics? Give its basic algorithm and explain its various steps. (10)
- (c) Compare Raster scan and random scan displays ? (5)
- Q 3) (a) Discuss and illustrate with an example the Bresenham's Line Drawing algorithm ? (15)
- (b) Differentiate between Bresenham's and Digital Differential Analyser(DDA) line drawing algorithm. (5)
- Q 4) (a) Discuss Bresenham's Circle Drawing algorithm ? (10)
- (b) Draw a circle with center (0,0) and radius 5 using Bresenham's circle drawing algorithm. (10)
- Q 5) (a) Explain and demonstrate the midpoint subdivision algorithm. (10)
- (b) Investigate the effect of translation with $t_x = 2, t_y = 3$ followed by scaling with $s_x = 2, s_y = 3$ on the line AB with A(0,0) and B(1,1). (10)
- Q 6) (a) Derive the 3×3 matrix that rotates a 2D point by angle θ about the origin. (8)
- (b) What is (i) Orthographic projection (ii) Oblique projection (iii) 1, 2 and 3 Perspective projection. Give examples of each. (3+3+6=12)