(MODEL QUESTION PAPER)

Sixth Semester B.Tech Degree Examination (2013 Scheme)

Branch: Information Technology

13.606 COMPUTER GRAPHICS (F)

Time: 3 Hours **Max. Marks: 100**

PART A

(Answer all questions. Each carries 4 marks)

1. Define the aspect ratio and explain how relative proportions of objects can be maintained on your system.
2. Explain 2D viewing transformation pipeline?
3. What is the concept of 'vanishing point'?
4. What is scan conversion?
5. What is meant by histogram equalization?

PART B

(Answer any one question from each module)

Module I

6. a) List the operating characteristics for the following display technologies: raster refresh systems, vector refresh systems, plasma panels. (10)

   b) Illustrate the Bresenham Line Drawing algorithm, digitize the line with endpoints (20, 10) and (30,18) and this line has a slope of 0.8. (10)

OR

7. a) What is display processor? Explain its functions. (5)

b)Explain DDA algorithm (8)

   c) What is the role of a display controller in raster scan display system? Explain. (7)

Module II

8. a) Explain 2D viewing transformation pipeline.How text clipping is done (6)
   b) Explain 2D rotation transformation (10)
   c) Write a Boundary Fill procedure using 8-connected approach (4)

OR

9. a) Describe short notes on1)Windiow 2)Viewport 3)World coordinates4)Device coordinates (8)

   b) Derive window to viewpoint coordinate transformation. (4)

   c) Show that the composition of two rotation is additive by concatening the matrix representations for R(Θ1) and R(Θ2) to obtain R(Θ1) * R(Θ2) = R(Θ1+ Θ2) ? (8)

Module III

10. a) Explain perspective projection of a three dimensional object and transform points along projection lines that meet at the projection reference point. (6)

b) Distinguish between 1 point perspective projection & 2 point perspective projection (4)

b) Explain flood fill polygon filling algorithm. (10)

OR

11. a) Distinguish between object space method and image space methods for visible surface detection? (12)

b) How is a Buffer method used for black face detection ? (8)

Module IV

12. a) Explain the algorithm used for region labelling. (8)

b) Explain bilinear interpolation technique used in image scaling (6)

c) Describe canny edge detector (6)

OR

13. a) What do you understand by equalization of gray level? Explain. (10)

b) How is edge detection done using Sobel operator, Robert edge detector? (10)