A-1735
B.Sc. (I.T.) (Sem. V) Examination
March / April – 2015
Computer Graphics

Time : 3 Hours] [Total Marks : 70
Instructions :

(1) Fill up strictly the details of the course and section on your answer book.

Name of the Examination : B.SC. (I.T.) (SEM. V)
Name of the Subject : COMPUTER GRAPHICS
Subject Code No. : 1 7 3 5 Section No. (1, 2, ..., ) Nil

Student's Signature

Seat No. :

(2) Draw the Figure and give example whenever necessary.

1 Answer the following questions: 14
(a) What is bitmap and pixmap?
(b) What do you mean by scan conversion? List the scan conversion method.
(c) What is meant by refreshing of the screen?
(d) Explain shearing.
(e) What is polygon? Explain its type.
(f) What do you mean by emissive and non-emissive displays?
(g) List out merits and demerits of DVST.

2 Answer the following questions: 7
(a) Explain the Bresenham's circle drawing algorithm with all necessary derivations. Consider start position as (-r, 0) and move in clockwise direction.

OR

(a) List the line clipping algorithms. Explain any one line clipping algorithm in detail.
(b) Differentiate raster scan display and random scan display. 7

A-1735] 1 [Contd...
3 Answer the following questions:
   (a) Explain scan line fill algorithm and also explain all data structures used in algorithm.
   (b) Applying Bresenham’s line drawing algorithm to draw a line from (4,4) and end point is (-3,0).

   OR
   (a) Explain the pipeline for transforming a view of a world-coordinate scene to device coordinates.
   (b) Enlist and explain character generation methods.

4 Answer the following questions:
   (a) What is projection? Enlist and explain types of projection.
   (b) Explain boundary fill and flood fill algorithms.

   OR
   (b) What is transformation? Generate matrix for anticlockwise rotation.
   (c) Perform a 90 degree rotation of a triangle A(0, 0) B(6, 0) c(3, 3) about an arbitrary points (3,3).

5 Do as directed.
   (a) What is segment? Explain segment table in detail.
   (b) Explain fundamental steps required in digital image processing.
   (c) Write 2 X 2 transformation matrix for each of the following about the origin:
      (a) Scale the image by to be half of the original.
      (b) Shift the image by 2 units to the left and 4 units to the down.
      (c) The x direction 3 times as large and y direction unchanged.
      (d) Rotate clockwise by theta.