2021

B.C.A

[HONOURS]

Paper : 303

(Computer Graphics & Multimedia)

Full Marks : 80 Time : 4 Hours

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

Answer **Q. No. 1** and any **four** from the rest.

1. Answer any **eight** questions: 2×8=16

   a) Write the important application of computer graphics.

   b) What is aspect ratio?

   c) What do you mean by translation vector?

   d) What is scan conversion?

   e) What is frame buffer?

   f) What is persistence?

   g) Define affine transformation.

   h) What is the need for homogeneous coordinate system?

   i) What is pivot point rotation?

   j) What is JPEG type file?

   k) What is the meaning of global co-ordinate system?

   l) What is morphing?

2. a) Compare between random scan display and raster scan display.

   b) Find out the pixel positions to draw a straight line (0, 2) to (4, 5) by any one of the following:

      i) Using D.D.A. line drawing algorithm.

      ii) Using Bresenhan's line drawing algorithm.

   c) Differentiate between D.D.A. and Bresenham's line drawing algorithm. 4+8+4

3. a) Write down the Bresenham’s line drawing algorithm.

   b) Reflect the polygon A(-1,0), B(0,-2), C(1,0) and D(0,2) about the line y=2. Find the coordinates of the reflected polygon.

   c) Write the recursive function of flood fill algorithm. 6+6+4

4. a) A triangle PQR has its vertices located at P(80, 50), Q(60, 10), R(100, 10). It is desired to obtain its reflection about an axis, parallel to Y axis and passing through a point A(30, 10). Work out the necessary transformation matrix and also the co-ordinates of the vertices of the reflected triangle.

   b) What are the different types of 2D Basic transformation and discuss about them? 8+8

5. a) Write some examples of multimedia hardware.

   b) What is hypertext?

   c) What are the different formats for audio files? Discuss each type.

   d) How images are compressed and why? 2+3+6+5

6. a) Discuss about inside outside test.

   b) Derive the window to viewport transformation.

   c) Define the composite transformation matrix of an object placed at location(2,3) and reflected about x axis. 6+4+6

7. Write short notes on any **four**: 4×4=16

   a) Color CRT Monitor

   b) Color model

   c) Reflection about Y axis

   d) Multimedia authoring

   e) Properties of multimedia

   f) AVI and JPEG file in multimedia

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