2019

BCA

6th Semester Examination

Computer Graphics & Multimedia

Paper – 3203

Full Marks – 100

Time : 3 Hours

*Answer Question Mo. **1** and any **four** from the rest.*
The questions are of equal value for
any group / half.

The figures in the margin indicate full marks.

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

Illustrate the answers wherever necessary.

1. **Answer any five questions :**

    (a) What is aspect ratio ?   2

    (b) Define Affine transformation.   2

    (c) What is Half toning ?   2

(d) What do your mean by morphing ?   2

(e) What do you mean by resolution of screen ?
                                                   2

(f) What is Animation ?   2

(g) What is 2D Reflection ?   2

(h) How multimedia is very useful in Computer
      Graphics ?   2

2. (a) Describe Bresenham line drawing algorithm.
                                                   7

(b) What are the major demerits of DDA
      algorithm ?   3

(c) A unit square is transformed by a 2×2
      transformation matrix. The resulting position
      vectors are

$$\begin{pmatrix} 0 & 2 & 8 & 6 \\ 0 & 3 & 4 & 1 \end{pmatrix}$$

What is transformation matrix ?   5

3. (a) What do you mean by clipping ? Explain
      mid-point subdivision line clipping algorithm.
                                                  2+6

(b) What are the differences between window-
      port and view port ?   4

(c) What do you mean by Graphics Primitivies ?

3

4. (a) Explain briefly boundary fill algorithm. 6

(b) A triangle is defined by the vertices $\begin{pmatrix} 1 & 0 & -1 \\ 0 & 1 & 0 \end{pmatrix}$ and the 2×2 translation matrix is $\begin{pmatrix} 3 & 2 \\ 1 & 2 \end{pmatrix}$.

(i) Find the arc of the triangle.

(ii) Find the vertices of the transformed triangle. 5

(c) What do you mean by shear ? 4

5. (a) Describe cubic Bezier curve having 4 control points. 8

(b) Derive the transformation matrix for window to viewport transformation. 7

6. (a) Defiine I, B & P frame in the context of video compression. 2×3

(b) What do you mean by lossless and lossy data compression ? 4

(c) Briefly, describe some important application of Computer Graphics in Science & Technology. 5

7. (a) Compare LCD and LED technology.   4

    (b) Describe shadow mask method for producing
         colour display with a CRT.   5

    (c) Write short notes on : (any **three**)   2×3

        (i)   PNG

        (ii)   HDTV

        (iii) MPEG

        (iv)   JPEG

        (v)   BMP

         [Internal Assessment – 30]

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