2020

COMPUTER SCIENCE — GENERAL

Paper : DSE-A-3

(Computer Graphics)

Full Marks : 50

The figures in the margin indicate full marks.

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

Day 2

Answer ***question no.*** **1** and ***any four*** from the rest.

1. Answer ***any five*** questions : 2×5

(a) Define raster scan and vector scan.

(b) What do you understand by point clipping?

(c) Define pixel.

(d) Mention the importance of resolution in computer graphics.

(e) Write 3-dimensional rotation matrix (about x-axis).

(f) Define world coordinate.

(g) State the importance of homogeneous coordinate system.

(h) Write 2-dimension scaling matrix (about x-axis and about y-axis).

2. (a) Discuss Cohen-Sutherland line clipping algorithm.

(b) Discuss Sutherland-Hudgeman polygon clipping algorithm. 5+5

3. (a) Find the transformation matrix for the following transformation :

Reflection of an object about the line $y = -x$.

(b) Prove that two consequtive translation is commutative. 5+5

4. (a) Derive and discuss midpoint line drawing algorithm.

(b) Derive and discuss Digital Differential Analyzer. 5+5

5. (a) Derive and discuss eight-point circle drawing algorithm.

(b) Derive and discuss midpoint circle drawing algorithm. 5+5

Please Turn Over

6. (a) Discuss the working principle of CRT monitor.

(b) Discuss the steps of animation in computer graphics. 5+5

7. (a) Differentiate parallel projection and perspective projective.

(b) Discuss about the classification of morphing. 5+5

8. (a) Derive and discuss Bresenham's line drawing algorithm.

(b) Derive and discuss Bresenham's circle drawing algorithm. 5+5

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