Derozio Memorial College
Internal Examination – 2021
B.Sc.(Hons.), 6th Semester
Department of Computer Science
Subject – Computer Graphics
Paper – CMSACOR14T, Date – 15.07.2021

Time: 1 Hour **Full Marks: 25**

Answer *any five questions* from the following

1. **1+1+1+2 = 5**

a) What is computer graphics?
b) Write various applications of computer graphics?
c) Why is focusing anode used in CRT?
d) What is Raster Scan and how is it different from Random Scan?

2. **1+1/2+1/2+3 = 5**

a) What is morphing?
b) Define – (i) Frame Buffer (ii) Pixel
c) Calculate the pixel positions along a straight line between A(10,12) and B(20,20) using DDA algorithm.

3. **3+1+1 = 5**

a) Explain midpoint circle drawing algorithm with example.
b) What is clipping?
c) What are different types of clipping?

4. **3+2 = 5**

a) Explain Cohen-Sutherland line clipping algorithm.
b) What do you mean by two dimensional rotation and scaling with an example?

5. **2+2+1 = 5**

a) Distinguish between window port and view port.
b) Explain polygon flood fill algorithm.
c) What do you mean by shearing?

6. **2+2+1 = 5**

a) Find new co-ordinates of line joining the points A(0,0), B(1,1) and C(5,2) to thrice of its size while keeping C(5,2) fixed.
b) Derive the composite 2D transformation matrix for scaling about a fixed point.
c) What do you mean by 3D reflection?

7. **2+2+1 = 5**

a) A polygon has 4 vertices located at A(10,10), B(10,40), C(40,10), D(40,40). Indicate a transformation matrix to have its reflection about X-axis?
b) Compare and contrast the perspective projection with the parallel projection.
c) What is vanishing point?

8. **3+2 = 5**

a) Explain Sutherland-Hodgeman polygon clipping algorithm with example.
b) Differentiate between isometric and orthographic projection.