2024
B.A./B.Sc.
Sixth Semester
CORE – 14
COMPUTER SCIENCE
Course Code: CSC 6.21
(Computer Graphics)

Total Mark: 70 *Pass Mark: 28*
Time: 3 hours

Answer five *questions, taking* one *from each unit.*

UNIT–I

1. (a) Explain non-interactive and interactive graphics. 4
   (b) What are graphics input and output devices? Explain two input and two output devices in detail. 2+8=10

2. (a) What is computer graphics? List some applications of computer graphics. 2+5=7
   (b) Explain the various graphic file extensions. 7

UNIT–II

3. (a) Explain the raster scan in detail. 2
   (b) Write the algorithm to draw a circle using polar coordinate. 6
   (c) Find all the intermediate points of a line with starting at (2, 2) and ending coordinate (8, 16) using DDA. 6

4. (a) Write a note on random scan. 2
   (b) Write the steps to scan convert a line using Bresenham's algorithm. 6
   (c) Given a circle with a radius of 5 and center at (1, 2), generate the coordinates of the circle using the polynomial method. 6

UNIT–III

5. (a) What do you mean by transformation? List an advantage of transforming an object. 2+1=3

(b) Given a homogeneous point at (1, 2, 3). Apply rotation 90 degree towards X, Y and Z axes and find out the new coordinate points. 5

(c) What is scaling in 2D plane? Given a square object with coordinate points A(–2, 4), B(–2, 0), C(2, 0), D(2, 4). Apply the scaling factor 5 towards X-axis and 5 towards Y-axis and obtain the new coordinates of the object. 2+4=6

6. (a) Write a note on 3D reflection. 2

(b) What is shearing? Given a triangle with points (1, 1), (0, 0) and (1, 0). Apply shear parameter 2 on X-axis and 2 on Y-axis and find out the new coordinates of the object. 2+4=6

(c) Given a 3D object with coordinate points A(0, 3, 1), B(3, 3, 2), C(3, 0, 0), D(0, 0, 0). Apply translation with the distance 1 towards X-axis, 1 towards Y-axis and 2 towards Z-axis and obtain the new coordinates of the object. 6

UNIT–IV

7. (a) What is wireframe model? List the advantages and disadvantages of this modelling. 1+6=7

(b) What do you mean by surface entities? Explain the types of surface entities. 1+6=7

8. (a) Differentiate between surface and solid modelling. 3

(b) What is Bezier curve? List the application of Bezier curve. 1+3=4

(c) Write a note on boundary representation (B-rep). 7

UNIT–V

9. (a) Differentiate between space method and image space method of hidden surface detection. 7

(b) Explain additive colour model and subtractive colour model. 7

10. (a) What do you mean by morphing in animation? 2

(b) Write a note on colour palettes. 5

(c) Explain in detail the coherence in hidden surface detection. 7