B. Sc. DEGREE END SEMESTER EXAMINATION : MARCH 2024
SEMESTER 6 : COMPUTER APPLICATION
COURSE : **19U6CRCAP11 : COMPUTER GRAPHICS**
(For Regular 2021 Admission and Supplementary 2020/2019 Admissions)

Time : Three Hours   Max. Marks: 75

PART A
Answer All (1 mark each)

1. Define the transformed coordinates of 2D scaling.
2. What are the three major adverse side effects of scan conversion?
3. Which color represents (1,1,1) in RGB color model ?
4. What is polygon?
5. Write the 2D rotation equation in the matrix form.
6. Which color represents (0,0,1) in RGB color model ?
7. Explain reflection.
8. Define the term ' centre of projection'
9. What is polygonal mesh?
10. Which type of perspective projection is used in drawings of railway lines?

(1 x 10 = 10)

PART B
Answer any 8 (2 marks each)

11. Explain pivot-point rotation.
12. Explain Color Display monitor.
13. Write the inequalities for the 2D line clipping.
14. Explain printer.
15. Define the term ' principal vanishing point'.
16. Explain polygon listing.
17. List the basic functions of depth-sorting methods.
18. Define Cabinet projection.
19. True or false: fluorescence is the term used to describe the light given off by a phosphor after it has been exposed to an electron beam. Explain your answer.
20. Define interlaced scannning method and its advantages.

(2 x 8 = 16)

PART C
Answer any 5 (5 marks each)

21. Explain scan converting a line.
22. Explain Z-Buffer method.
23. How to represent a polygon surface with six edges an five vertices using geometric data table?
24. Explain the transformation sequence when a 3D object is to be rotated about an axes that is parallel to one of the co-ordinate axes.
25. Differentiate Sutherland - Hodgeman polygon clipping and Werler Atherton polygon clipping.

26. Explain general pivot point rotation.

27. Explain scan converting an ellipse.

(5 x 5 = 25)

PART D
Answer any 2 (12 marks each)

28. Consider a triangle at (2,2), (10,2), (2,10). Perform the following 2D transformations in succession and find the resultant vertices.
    a) Scale with respect to (2,2) by scaling factors (2, 2) respectively along x and y directions.
    b) Rotate by 90^0 counter clockwise direction.
    c) Reflect about x axis.

29. Explain painters algorithm.

30. Explain composite transformation. Explain any two with example and diagram.

31. Prove that the multiplication of 3D transformation matrices for each of the following sequence of operation is commutative.
    a) Any two successive translation.
    b) Any two scaling operation.
    c) Any two successive rotation about any one of the co-ordinate axes.

(12 x 2 = 24)