B.Sc. Semester -VI Examination, 2023-24

COMPUTER SCIENCE (Honours)

Course ID : 61512 **Course Code : SH/CSC/602/C-14**

Course Title : Computer Graphics

Time: 1 Hour 15 minutes Full Marks : 25

The figures in the right-hand margin indicate marks.

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

Unit – I

1. Answer any five (5) of the following questions: 1×5 = 5

   a) What is vertical retrace?

   b) Name some hardware devices commonly used to support computer graphics.

   c) Why do we need homogenous coordinates?

   d) What is composite transformation?

   e) Name a process used for eliminating part of a scene outside a specified window.

   f) Write two examples of scan converted objects.

   g) What is projection?

   h) What do you mean by vanishing point?

Unit - II

2. Answer any two (2) of the following questions: 2×5 = 10

   a) Briefly explain the functioning of a CRT monitor.

   b) Consider the line from (0,0) to (4,6). Use DDA

algorithm to rasterize this line. Write one disadvantage of DDA algorithm. 4 + 1 = 5

c) Write and explain an algorithm used for hidden surface removal.

d) What do you mean by screen resolution? If a video has a resolution of 1920 x 1080 pixels and needs to be resized to a width of 1280 pixels while maintaining the same aspect ratio, what would be the new height of the video? What is persistence? 1+3+1=5

Unit – III

3. Answer any one (1) of the following questions: 1×10= 10

a) Describe the basic colour model used in surface rendering in brief. Find a transformation of triangle A(1,0),B(0,1),C(1,1) by-

i) Rotating 45^0 about the origin and then translating one unit in x and y direction.

ii) Translating one unit in x and y direction and then rotating 45^0 about the origin. 4+3+3

b) Write Bresenham's circle drawing algorithm and use it to compute 4 points on any quadrant of the circle $X^2 + Y^2 = 25$ 6+4