Roll No. | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 07

B.Sc. (Information Technology) (Sem.–5)

COMPUTER GRAPHICS

Subject Code : UGCA1934

M.Code : 90395

Date of Examination : 24-05-2023

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.**

SECTION-A

1. Write briefly:

a) What are some common applications of virtual reality environments?

b) How do CRT displays differ from modern flat panel displays?

c) How does anti-aliasing improve the quality of scan-converted lines?

d) Can voice recognition technology be used as an input device? If so, how effective is it?

e) How do algorithms for line drawing differ between raster and vector graphics?

f) What is the result of applying the translation matrix [2,1,2; 0,1,2; 0, 0,1] to the point (1, 5)?

g) List various types of Parallel Projections.

h) What are the disadvantages of using DDA Line drawing algorithm?

i) Differentiate between Liang-Barsky & Sutherland-Hodgeman clipping algorithm.

j) What is the purpose of clipping in computer graphics and what are the common types of clipping algorithms?

SECTION-B

2. Let's consider another composite transformation that involves first translating an object by (1,-2), then rotating it clockwise by 45 degrees about the point (2,-1), and finally scaling it by a factor of 0.5. If we have an object represented by the polygon with vertices (1,1), (3,1), (3,3), and (1,3), what will be the coordinates of the transformed vertices?

3. What are the different steps of Cohen Sutherland clipping algorithm. Given the line segment with endpoints (3, 4) and (8, 10), and the clipping rectangle with corners (4, 5) and (10, 8), apply the Cohen-Sutherland algorithm to clip the line segment.

4. Explain working of CRT Display device. What are the advantages and disadvantages of LED flat panel displays compared to traditional CRT displays? What is the difference between a LED and OLED flat panel display?

5. What is the usage of Perspective and Parallel Transformations? What are the different types of transformations? Discuss in detail with suitable diagrams.

6. Suppose we have a 3D object represented by a cube with vertices (2,2,1), (2,2,2), (2,3,1), (2,3,2), (3,2,1), (3,2,2), (3,2,1), and (3,3,2). If we want to perform a composite transformation that involves first scaling the object by a factor of 2 along the z-axis, then rotating it counterclockwise by 45 degrees about the y-axis and finally translating it by (4,5,5), what will be the coordinates of the transformed vertices?

7. What do you mean by Mid-Point in Ellipse drawing? Explain working of Mid-Point Ellipse drawing algorithm. What are some limitations of ellipse-drawing algorithms and how can they be addressed?

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.