

**U.G. 6th Semester Examination - 2021**

**COMPUTER SCIENCE**

**[HONOURS]**

**Course Code : COM.SC-H-CC-L-614**

Full Marks : 60

Time : 2½ Hours

*The figures in the right-hand margin indicate marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

**GROUP-A**

1. Answer any **ten** questions from the following:

2×10=20

- a) What are the properties of Video Display Unit (VDU)?
- b) What is shearing?
- c) Name any two 3D viewing devices.
- d) Give any two differences between raster scan and vector scan.
- e) What is scan code?
- f) How curves are represented in graphics?
- g) What is tweening?
- h) What are the uses of morphing and warping?

[Turn over]

- i) What is exterior clipping?
- j) What are the types of video compression available?
- k) State the use(s) of chromatic diagram.
- l) What is projection?
- m) Define fractals?
- n) How are 2-D animations classified?
- o) Define spline curve.

**GROUP-B**

Answer any **four** questions :

5×4=20

2. Describe the steps in Bresenham's midpoint circle drawing algorithm. 5
3. Write a boundary fill procedure to fill an 8-connected region. 5
4. Explain scan-line polygon fill algorithm. What are the disadvantages of this algorithm? 4+1
5. Discuss the steps of flood-fill algorithm. 5
6. Write the steps of Cohen-Sutherland line clipping algorithm. 5
7. Differentiate between B-spline and Bezier curves. 5

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### GROUP-C

Answer any **two** questions :  $10 \times 2 = 20$

8. a) What is the purpose of homogeneous coordinates?

b) Use homogeneous coordinate system to represent the translation, rotation and scaling transformation as matrix multiplication form.  $2+8$

9. a) Using the midpoint circle drawing algorithm determine the points to draw the circle with radius of 10 units along the circle octant in the first quadrant from  $x = 0$  to  $x = y$ .

b) Explain reflection and shear transformation briefly.  $6+4$

10. a) Set up a procedure for establishing polygon tables for any input set of data points defining an object.

b) Explain the procedure for drawing Bezier curves.  $7+3$

11. Write short notes on any **two** of the followings:

$5 \times 2 = 10$

a) Frame Buffer and SVGA

b) Random and Raster display

c) Color lookup table

d) Sutherland-Hodgeman polygon clipping algorithm.