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Roll No. :

BCA-17

Interactive Computer Graphics

Bachelor of Computer Application (BCA-11/16/17)

5th Semester Examination June 2022

Time : 2 Hours

Max. Marks : 80

Note : This Paper is of Eighty (80) marks divided into two (02) Section A and B. Attempt the questions contained in these sections according to the detailed instructions given there in.

Section-A

(Long Answer-type questions)

Note: Section 'A' contains Five (05) Long-answer type questions of Twenty (20) marks each. Learners are required to answer any two (02) questions only.

(2 x 20 = 40)

- Q.1. a. Explain the midpoint circle drawing algorithm. Assume 30 cm as the radius and co-ordinate origin as the center of the circle.
- b. Explain about Random and Raster scan systems.

P.T.O.

- Q.2 a. What do you mean by transformation? What is the need of transformation? Derive the matrix for 2D translation, rotation and scaling.
- b. Prove that simultaneous shearing in both direction (X & Y direction) is not equal to the composition of pure shear along x-axis followed by pure shear along y-axis.
- Q.3 a. Draw the block diagram of CRT and explain the working of it.
- b. Explain flood fill and Boundary fill algorithm.
- Q.4 Explain the following term:
Anti-aliasing, Morphing, Stair case problem, TIFF and PNG format, DVST.
- Q.5 Write short notes on :
- | | |
|-----------------|--------------|
| a. Amiga | b. SGI |
| c. GIF animator | d. Wavefront |

P.T.O.

Section-B

(Short Answer-type questions)

Note: Section 'B' contains Eight (08) Short-answer type questions of ten (10) marks each. Learners are required to answer any four (04) questions.

(4 x 10 = 40)

- Q.1 Perform a 60° rotation of triangle A(0,0), B(1,0) and C(-1,-1):
- a. About origin b. About P(0,1)
- Q.2 Give the difference between Beam Penetration method and shadow mask method.
- Q.3 Write short notes on the following :-
- a. Interlacing b. Persistence c. Frame buffer
d. Aspect Ratio e. Retarding
- Q.4 What is Morphing? What are the software available for morphing? Explain the application area of it.

P.T.O.

- Q.5 Derivate Cohen-Sutherland Line Clipping Algorithm with example.
- Q.6 Find out transformation matrix that transforms a given square ABCD to half its size with centre still remaining at the same position. The coordinates of the square are A(1,1), B(3,1), C(3,3) and D(1,3) centre at (2,2).
- Q.7 Compare the parallel and perspective projection with example.
- Q.8 Explain boundary fill algorithm in detail.

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