

**BACHELOR OF COMPUTER APPLICATION
THIRD SEMESTER
INTRODUCTION TO COMPUTER GRAPHICS
BCA-304**

**SET
A**

(USE OMR FOR OBJECTIVE PART)

Duration: 1.30 hrs.

Full Marks: 35

Time: 15 min.

(Objective)

Marks: 10

1X10=10

Choose the correct answer from the following:

1. Which property of a circle is utilized by both the Midpoint and Bresenham's algorithm to reduce calculations?
 - a. 4-way symmetry
 - b. 8-way symmetry
 - c. Polar coordinate symmetry
 - d. Cartesian coordinate symmetry
2. Which of the following is a rigid body transformation that moves objects without deformation?
 - a. Rotation
 - b. Scaling
 - c. Translation
 - d. All of these
3. Which algorithm uses a "seed point" and spreads outward until a specified boundary color is reached?
 - a. Scan-line fill algorithm
 - b. Flood fill algorithm
 - c. Boundary fill algorithm
 - d. Both B and C
4. On a raster system, lines are plotted by illuminating:
 - a. Lines
 - b. Dots
 - c. Pixels
 - d. Vectors
5. The process of digitizing a picture into a set of pixel values is called:
 - a. Scan conversion
 - b. Animation
 - c. Vectorization
 - d. Sampling
6. The Sutherland Hodgman algorithm is used for clipping which type of objects?
 - a. Lines
 - b. Polygons
 - c. Both a and b
 - d. Text
7. What is the main function of a frame buffer?
 - a. To process user commands
 - b. To store intensity information of an image
 - c. To convert 0s and 1s into a video signal
 - d. To capture input from a scanner

8. What is the main purpose of circle drawing algorithms like Bresenham's or the Midpoint algorithm?
- a. To determine the equation of a circle
 - b. To fill the circle with a color
 - c. To convert a continuous circle into a set of discrete pixels on a screen
 - d. To draw the circle's diameter and radius
9. If the logical AND of the endpoint codes in the Cohen-Sutherland algorithm is NOT zero, what does this mean for the line?
- a. The line is completely outside the window
 - b. The line is completely inside the window
 - c. The line is partially inside and partially outside the window
 - d. The line can be trivially accepted
10. Which of the following line drawing algorithms uses only integer arithmetic, avoiding floating-point calculations?
- a. DDA Algorithm
 - b. Bresenham's Line Algorithm
 - c. Midpoint Circle Algorithm
 - d. All of the above

(Descriptive)

Time : 1 hrs. 15 min.

Marks : 25

[Answer question no.1 & any two (2) from the rest]

1. Write the main applications of Computer Graphics in various fields. 5
2. a) Compare the DDA and Bresenham's line drawing algorithms in terms of efficiency and accuracy. 4+6=10
b) Find points to draw a line which joining the points (0,3) & (12, 11)
3. a) Write Bresenham's Circle Drawing Algorithms. 5+5=10
b) Draw a circle of radius 8 using Mid point algorithm.
4. a) Write about the principle of Sutherland -Cohen Line clipping algorithm. 5+5=10
b) Explain advantages and disadvantages of Sutherland -Hodgman polygon clipping algorithm.
5. Define the Basic transformations in 2D view with equations. Find the coordinate of new triangle after applying translation by 2 unit in y-axis & 3 unit in x-axis where original coordinates of triangle are (3,1) (4, 4) and (5,1). 5+5=10

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