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May-2026

B.Sc. (ANIMATION AND MULTIMEDIA)

IInd SEMESTER

Programming Languages and Computer Graphics

(AMU-106-V)

Time: 3 Hours]

[Max. Marks : 75

Instructions :

1. *It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.*
2. *Answer any four questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART–A

1. (a) What is pre-processor directive? (1.5)

   (b) Briefly discuss the utility of instance transformation. (1.5)

   (c) Write a C program to generate a circle using built in function. (1.5)

   (d) Which in built function is used to display a pixel on the screen? (1.5)

(e) How will you find the resolution of display unit using C program? (1.5)

(f) What is purpose of using DETECT macro in every graphics program in Turbo C? (1.5)

(g) Write boundary fill algorithm. (1.5)

(h) How symmetrical nature of circle reduces the complexity of circle drawing algorithm? (1.5)

(i) Write a general structure of C program with an example. (1.5)

(j) Find a normalized transformation that maps a window whose lower left corner is at (1, 2) and upper right corner is at (5, 7) on to a viewport that has the lower left corner at (3/4, 3/4) and upper right corner at (3, 3). (1.5)

PART -B

2. (a) What is an array? How a single dimension and two-dimension arrays are declared and initialized? (10)

(b) Explain the different types of loops in C with syntax. (5)

3. (a) Write a C-program using function to check whether the given number is prime or n. (5)

(b) What is function? Explain different classification of user defined functions based on parameter passing and return type with examples. (10)

4. What is a pointer? Explain how the pointer variable declared and initialized. Write a program in C to find the sum and mean of all elements in an array using pointers. (15)

5. (a) Discuss applications of computer graphics. (5)

(b) Derive the equation for decision parameter of next pixel position along the circular path using Bresenham's algorithm by taking the starting point in 3rd quadrant. (10)

6. (a) Also find the transformed coordinates for a triangle defined by the vertices A(1, 1), B(5, 1), C(1, 5) when reflected about a line Y = 2X + 10. (10)

(b) Write steps of 4-bit line clipping algorithm. (5)

7. Differentiate between the following :

(a) Window *vs.* Viewport.

(b) Raster scan *vs.* Random Scan.

(c) Break and continue statement. (15)