

**334201**

May, 2019

**B.Sc. (Animation) - II SEMESTER  
Introduction to Programming Languages and  
Computer Graphics (BSC(A)-18-201)**

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) Differentiate between variable and constant in C language. (1.5)
- (b) Define pointer. (1.5)
- (c) Write any three Graphics softwares. (1.5)
- (d) What is Aspect ratio? (1.5)
- (e) What is meant by refresh rate? (1.5)
- (f) Explain any one method of Inside-Outside tests. (1.5)

- (g) Explain reflection transformation? (1.5)
- (h) Explain viewing pipeline. (1.5)
- (i) Differentiate between scanf() and gets() function. (1.5)
- (j) Differentiate between while and do-while loop. (1.5)

### PART-B

2. (a) Define array. How is 2D array declared and initialized? Write a program to multiply two matrices. (7)
  - (b) Write a program to find the reverse of a string without using library function. (4)
  - (c) Write a program to find whether a given number is Armstrong number or not. (4)
3. (a) How is a pointer declared and initialized? Write a program using pointer to variables of type char and int. (5)
  - (b) Differentiate between call by value and call by reference and write programs for each. (10)
4. (a) What is Computer Graphics? Explain different types of Graphics. Write applications of Computer Graphics in detail. (7)
  - (b) Explain CRT and beam-penetration method of display. Differentiate between Raster scan systems and Random scan systems. (8)

5. (a) Explain Bresenham's line drawing algorithm. Consider the line with endpoints (20,10) and (30,18), use general Bresenham's line algorithm to rasterize this line. Evaluate and tabulate all the steps involved. (10)
  - (b) Explain Flood Fill Algorithm. (5)
6. (a) Explain Cohen-Sutherland line Clipping in detail using suitable examples. (5)
  - (b) Explain different types of basic Transformations in detail. Find the matrix that represents rotation of an object by 30 degree about the origin. What are the new coordinates of the point P(2, -4) after rotation. (10)
7. Write short notes on the following :
    - (a) User Defined Functions in C language. (5)
    - (b) Polygon Clipping. (5)
    - (c) Character Generation. (5)