

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**FIFTH SEMESTER B.TECH DEGREE EXAMINATION(R&S), DECEMBER 2019**

**Course Code: ME305**

**Course Name: COMPUTER PROGRAMMING & NUMERICAL METHODS**

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer any three full questions, each carries 10marks.*

Marks

- |   |  |     |
|---|--|-----|
| 1 | a) Explain any 6 data types used in C++ with its keyword size and limitations. | (6) |
|   | b) Differentiate between break and continue statements used in loops.          | (4) |
| 2 | a) List and explain different types of operators used in C++.                  | (6) |
|   | b) Write a C++ program to find sum of first n natural numbers .                | (4) |
| 3 | a) List different types of control structures used in C++.                     | (6) |
|   | b) Write a C++ program to find factorial of a number.                          | (4) |
| 4 | a) What is function overloading? Explain with an example                       | (6) |
|   | b) Write a C++ program to add two 4x4 matrices                                 | (4) |

**PART B**

*Answer any three full questions, each carries 10marks.*

- |   |  |     |
|---|--|-----|
| 5 | a) Write a C++ program to reviv 10 numbers in an array and sort it in ascending order. | (6) |
|   | b) What are pointers? Explain with examples.   | (4) |
| 6 | a) Write a C++ program to print all prime numbers below an entered value.              | (6) |
|   | b) How functions are called by reference? Explain with example.                        | (4) |
| 7 | a) What is single inheritance in C++? Explain with example.                            | (6) |
|   | b) Differentiate class and objects.  | (4) |
| 8 | a) What are access specifies?  | (6) |
|   | b) Differentiate data members and member functions.                                    | (4) |

**PART C**

*Answer any four full questions, each carries 10marks.*

- 9 Solve the following system of equation using Gauss elimination method

$$3x + 2y - z = 1$$

$$2x - 2y + 4z = -2$$

$$-2x + y - z = 0$$

(10)

- 10 Determine the value of  $y$  corresponds to  $x=301$  using Aitken's method (10)

$x$	300	304	305	307
$y$	2.4771	2.4829	2.4843	2.4871

- 11 Write a C++ program to solve the following system of equations using any numerical method. (10)

$$x + 3y - 2z = 5$$

$$3x + 5y + 6z = 7$$

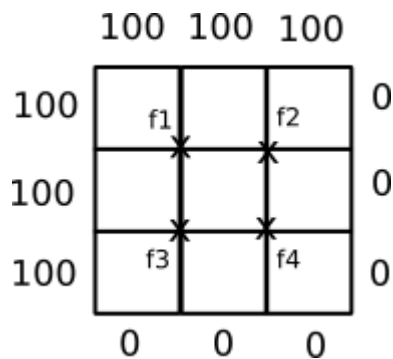
$$2x + 4y + 3z = 8$$

- 12 Fit a straight line to the following set of data

$x$	5	10	15	20	25	(10)
$y$	16	19	23	26	30	

- 13 What is correlation Coefficient? Write a C++ program to find out correlation coefficient for a set of related data. (10)

- 14 Solve the following domain using finite difference approximation



(10)

\*\*\*\*