

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 revive 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 | |
| | $3x + 2y - z = 1$ | |
| | $2x - 2y + 4z = -2$ | (10) |
| | $-2x + y - z = 0$ | |

- 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)

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

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

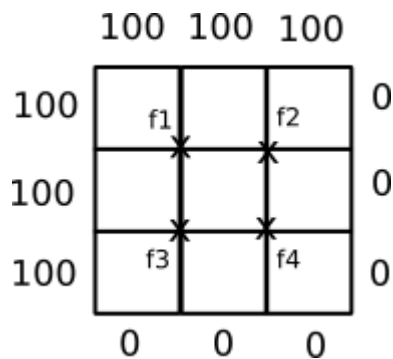
$$2x + 4y + 3z = 8$$

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

| | | | | | |
|-----|----|----|----|----|----|
| x | 5 | 10 | 15 | 20 | 25 |
| 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)
