Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FIFTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018

Course Code: ME305

Course Name: COMPUTER PROGRAMMING AND NUMERICAL METHODS

Max. Marks: 100 Duration: 3 Hours

PART A

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

1	a)	Explain six different built in data types used in C++ with its limits.	(6)
	b)	Differentiate between assignment operator and equality operators.	(4)
2	a)	List and explain different types of operators used in C++	(6)
	b)	Explain basic structure of a C++ program	(4)
3	a)	Explain different control structures used in C++	(6)
	b)	Differentiate break and continue statements.	(4)
4	a)	Write a C++ program of find out sum of first “n” natural numbers.	(6)
	b)	Explain function overloading with an example	(4)

PART B

Answer any three full questions, each carries 10 marks.

5	a)	Write a C++ program to find factorial of number	(5)
	b)	Write a C++ program to receive 10 numbers in an array and to sort it in ascending order.	(5)
6	a)	Write a C++ program to multiply two 5x5 matrices	(6)
	b)	Differentiate between function call by value and reference	(4)
7	a)	Explain class and objects with help of examples	(6)
	b)	What are the access specifiers in C++?	(4)
8	a)	Explain inheritance and derived classes using examples	(6)
	b)	Differentiate member functions and data members	(4)

PART C

Answer any four full questions, each carries 10 marks.

9	a)	Write a C++ program for solving a system of linear equations by any one numerical method.	(6)
	b)	Differentiate between round off error and truncation error.	(4)
10		Solve the system of liner equations by Gauss elimination method	(10)

3x-2y+8z=9,

-2x+2y+z= 3,

x+2y-3z=8

11 Solve this system of equations with Gauss-Seidel iterative method 10

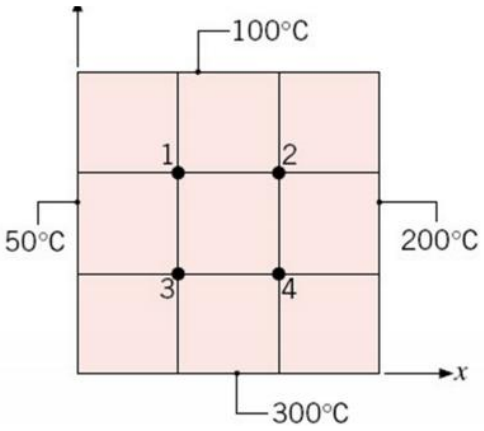
$4x_1 + x_2 - x_3 = 3$
$2x_1 + 7x_2 + x_3 = 19$
$x_1 - 3x_2 + 12x_3 = 31$

12 Fit a straight line to the following set of data. Also calculate correlation coefficient for the data and comment on the results. 10

x	1	2	3	4	5	6	7
y	0.5	2.5	2.0	4.0	3.5	6.0	5.5

13 Derive finite difference approximation equations for Laplace equation 10

14 Find out temperature at points 1,2,3 & 4 on a square domain using finite difference approximation method corresponding to the boundary conditions as below. 10



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