Reg No.:_____   Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FIFTH SEMESTER B.TECH DEGREE EXAMINATION(S), MAY 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		Explain with the help of an example program how data can be inputted by reading from a file. Add statements in the program to display the numbers read. Also show the contents of the data file to be prepared.	6+2+2
2	a)	How many bits are used to store a float type C++ data in the computer memory? What is the number of significant digits in a float type data?	2+1
	b)	Explain how a float type data is stored in the computer memory.	7
3	a)	What are control statements? Write any four control statements used in C++	6
	b)	Write and explain the syntax of "for" loop.	4
4		Write a C++ program using do..while statement to print the sum of squares of an array containing "10" values to be declared and initialized. Show how the output of the program is displayed.	8+2

PART B
Answer any three full questions, each carries 10marks.

5	a)	List any three advantages of pointers. What is pointer to a one-dimensional array?	3+3
	b)	Differentiate between function call by value and function call by reference.	4
6		Write a C++ program to declare and initialize two matrices. Add statements in this program to find their product.	3+7
7	a)	What are friend functions?	4
	b)	Show using an example code, how a friend function access private members of a class.	6
8		Explain public inheritance and private inheritance with suitable examples	10

PART C
Answer any four full questions, each carries 10marks.

9		Solve the following system of equations using an iterative solution technique $8x - 3y + 2z = 20$, $4x + 11y - z = 33$ and $6x + 3y + 12z = 36$. Name the method used	9+1

10		What is a system of linear equation? What is the condition for a unique solution? Name three methods for solving system of equations. Give three points of comparison between direct methods and iterative methods for solving system of linear equations	2+2+ 3+3
11		Mention the use of the following numerical methods/parameters (i) Aitken's methods (ii) Correlation coefficient (iii) finite difference method (iv) least square method and (v) Gauss-Jordan method.	2 mark each
12	a)	What is correlation? How is it different from regression?	5
	b)	Name any one measure of correlation. Write down its equation.	5
13		Write a C++ program to declare and initialize the pairs of values x and y given by (0,-12), (1,0), (2,0), (3,6) and (4,12). In the same program include statements to interpolate the value of y for x=3.2 using a fourth degree polynomial.	3+7
14		Write a C++ program to declare and initialize 10 pairs of values. Add more statements in this program to compute the coefficient of correlation.	3+7

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