Reg No.:_____   Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S6 (S,FE) / S4 (PT) (S,FE) Examination May 2023 (2015 Scheme)

Course Code: CE306

Course Name: COMPUTER PROGRAMMING AND COMPUTATIONAL TECHNIQUES

Max. Marks: 100   Duration: 3 Hours

PART A
Answer any two full questions, each carries 15 marks.   Marks

1   a)   Illustrate while and do while loop with its syntax.   (5)

    b)   Prepare a C++ program to find the mean and standard deviation of set of n   (10)

numbers. Standard deviation equation is given by, $S = \sqrt{\dfrac{\sum_{i=1}^{n}(x_i - \bar{x})^2}{n-1}}$, where x_i is

each sample, $\bar{x}$ is mean of the samples and n is the number of samples.

2   a)   Explain any five string handling functions with examples.   (5)

    b)   Prepare a C++ program to read a string from keyboard and determine whether the   (5)

string is palindrome or not.

    c)   List any five types of operators in C++.   (5)

3   a)   Describe the syntax and working of switch statement.   (5)

    b)   Write a C++ program to find product of two matrices.   (10)

PART B
Answer any two full questions, each carries 15 marks.

4   a)   Explain recursive function with an example.   (8)

    b)   Differentiate global and static variables with examples.   (7)

5   a)   List the different file handling operations in C++.   (5)

    b)   Using the concept of structures prepare a C++ program to read the following   (10)

information of 60 students: Student name, roll number and mark in 8 subjects. Also

print the list of students who secured 80% marks in total.

6   a)   Using user defined function write a program to find the roots of a quadratic   (10)

equation of the form $ax^2+bx+c=0$. The result should be printed in the **main**

function.

    b)   List the features of object-oriented programming. Explain inheritance in OOP.   (5)

PART C
Answer any two full questions, each carries 20 marks.

7 a) Solve the equation $x^3 - 9x + 1 = 0$ by Newton-Raphson method to find one real root. (10)

   b) Compute the value of $\int_1^2 \frac{dx}{x}$ using Simpson's rule and trapezoidal rule. Take h = 0.25 (10)

8 a) Fit a second degree parabola of the form $y = ax^2 + bx + c$ to the following data. (10)

X	10	20	30	40	50	60
Y	4.5	7.1	10.5	15.5	20.5	27.1

   b) Prepare a C++ program to find the roots of transcendental equations using successive approximation method. (10)

9 a) Solve the following system of equations using Gauss elimination method. (10)

   2X-3Y+Z = -1

   X+4Y+5Z = 25

   3X-4Y+Z = 2

   b) Prepare a C++ program to solve transcendental equation using Regula falsi method. (10)

****