Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

SIXTH SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2018

Course Code: CE306

Course Name: COMPUTER PROGRAMMING AND COMPUTATIONAL TECHNIQUES (CS)

Max. Marks: 100 Duration: 3 Hours

PART A

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

1 a) Explain the various conditional statements in C++. (5)

b) Write a program to find the sum, average and product of a set of N numbers, using arrays. (10)

2 a) What are the different unformatted console I/O functions? (5)

b) Write a program to read a matrix, replace all negative elements of the matrix by zero and print the resulting array. (10)

3 a) Give the purpose of following functions with examples. i) strcmp() ii) strcat() iii) strupr() (5)

b) Write a program to check whether given string is palindrome. (10)

PART B

Answer any two full questions, each carries 15 marks.

4 a) What are function prototypes and what is its purpose? (5)

b) Write a program to read an array of integer numbers and display its mean and standard deviation. Note: Computation of mean and standard deviation needs to be performed in a separate function. (10)

5 a) Discuss various file Input / Output statements in C++ with examples. (5)

b) Prepare a C++ program to enter the details of 'N' books like title, author's name, number of pages, price of the book and year of publishing and print them in tabular form using a structure. (10)

6 a) Explain function overloading in C++ with suitable examples. (7)

b) Explain in detail the difference between procedural programming and object oriented programming. (8)

PART C

Answer any two full questions, each carries 20 marks.

7 a) Find the root for the equation f(x) = *lnx – cos x = 0* using Regula Falsi method (10)

b) Write a program to find any one root of a given function using Newton-Raphson method. Note: the function may be taken as *lnx – cos x = 0* (10)

8 a) Use three point Gauss quadrature to integrate the following function

$$\int_0^2 e^{-2(x^2+2x)}dx \quad (10)$$

b) Write a program to numerically integrate a given function (with the tabulated values of function at equal intervals available) using trapezoidal rule. (10)

9 a) Solve the following set of simultaneous equations by Gauss elimination: $2x_0+3x_1+5x_2=23$; $3x_0+4x_1+x_2=14$; $6x_0+7x_1+2x_2=26$ (10)

b) Explain the finite difference method for solution of partial differential equations (10)

****