

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

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|---|---|------|
| 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.

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| 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 $f(x) = \ln x - \cos x = 0$ 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 $\ln x - \cos x = 0$ (10)
- 8 a) Use three point Gauss quadrature to integrate the following function (10)
- $$\int_0^2 e^{-2(x^2+2x)} dx$$
- 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: (10)
 $2x_0+3x_1+5x_2=23$; $3x_0+4x_1+x_2=14$; $6x_0+7x_1+2x_2=26$
- b) Explain the finite difference method for solution of partial differential equations (10)
