

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  $f(x) = \ln x - \cos x = 0$  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)

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