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## P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

First Semester, B.E. - Semester End Examination; Dec - 2016/Jan - 2017

### Computer Concepts and 'C' Programming

(Common to all Branches)

Time: 3 hrs

Max. Marks: 100

**Note:** Answer **FIVE** full questions, selecting **ONE** full question from each unit.

#### UNIT - I

- 1 a. With figure, explain the functional units of digital computer. 8
- b. Differentiate between primary and secondary memory. 5
- c. Write flow chart to find the roots of a quadratic equation. 7
- 2 a. Write an algorithm to count the number of +ve and -ve numbers in a list of  $n$  numbers. 8
- b. What are the rules for framing variables? Give two valid and invalid examples. 6
- c. Evaluate the expression given below. Also state the values of the modified variables, if any. Assume that the variables are initialized as shown below. Show the steps clearly.
- $p = 7, q = 3, x = 18, y = 8, i = 2, j = 5, k = 10$  6
- i)  $q = p++ + p++ + --p + ++p - q++;$
- ii)  $w = x > y ? x >> 2 : y << 2;$
- iii)  $k *= (i + j) / 3 + 3 * j / 4;$

#### UNIT - II

- 3 a. With syntax and example explain formatted i/o statement. 6
- b. Given three sides of a triangle check whether it forms a triangle or not. If yes, print whether it forms equilateral triangle, or isosceles triangle or scalene triangle. 6
- c. Explain with example, unconditional branching statement. 8
- 4 a. With syntax, explain for loop statement and do while statement. Also give an example to each. 6
- b. Write a program to evaluate the following series upto  $n$  terms, 8
- $1 + \left(\frac{1}{2}\right)^2 - \left(\frac{1}{3}\right)^2 + \dots n \text{ terms.}$
- c. Write a program to print the color based on the given character using switch statement, 6
- 'R' or 'r' → red, 'G' or 'g' → green
- 'W' or 'w' → white, 'B' or 'b' → blue.

#### UNIT - III

- 5 a. Accept  $n$  numbers write a program to find mean, variance and standard deviation. 8
- b. Give the syntax for declaring two dimensional array. Also explain the different ways of initializing two dimensional arrays. Show the content of memory. 7

- c. Write a program to read  $n$  float numbers into array and compute their sum of squares of numbers. 5
- 6 a. Write a program to sort  $n$  element using bubble sort method. 6
- b. Explain the following string handling functions with examples : 6
- i) strcpy( )    ii) strcmp( )    iii) strlen( ).
- c. Write a program to concatenate two strings without using library functions. 8
- UNIT - IV**
- 7 a. List and explain categories of functions. 12
- b. Write a program to search for given element using linear search method. Write functions for search and display appropriate message in main 8
- 8 a. Declare a pointer variable of types char, float and int, and explain how to initialize the pointer variable with an example? Write a program to swap the content of two memory location using pointer. Display the content of memory before and after swap. 10
- b. Write a program to pick largest and smallest number in a given list using pointer variable. 10
- UNIT - V**
- 9 a. Differentiate between structure and union. 6
- b. Define a structure called employee with the following members :  
i) emp\_name    ii) emp\_id    iii) gross pay    iv) Deduction. 10  
Write a program to accept details of  $N$  employees and calculate Net pay for each employee. Display all the details of an employee.
- c. What is a file? What is its need? 4
- 10 a. Explain the following file handling function with example : 10
- i) fopen( )    ii) fclose( )    iii) fscanf( )    iv) fprintf( )    v) fgetc( ).
- b. What are the steps that are followed while accessing file? Explain. 4
- c. Write a program to concatenate the contents of file 1 and file 2 and store the result in file 3. 6

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