

**Bharti Vidya peeth's  
Institute of Computer Applications and Management  
A-4, Paschim Vihar, New Delhi-63**

**MCA-01<sup>st</sup> Semester , Internal Examination, Batch: 2016-19**

<i>Paper Code: MCA 103</i>	<i>Subject: Programming in C (2010 Onwards)</i>
<i>Max. Marks: 45</i>	<i>Max. Time: 02 Hrs</i>
<i>Note: Attempt one question from each unit including Q.no.1 which is compulsory.</i>	

**Q.1. Attempt all questions, Answer briefly: (15 Marks)**

- i. Write four different C statements that each add 1 to integer variable x. (1)
- ii. Write two different C statements to calculate the remainder after q is divided by divisor and assign the result to q. write this statement two different ways. (1)
- iii. What's wrong with the following while repetition statement (assume z has value 100), which is supposed to calculate the sum of the integers from 100 down to 1? (2)  
while ( z >= 0 ) sum += z;
- iv The format control string may contain \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_.(2)
- v. Give the function header for each of the following functions. (2)
  - a) Function hypotenuse that takes two double-precision floating-point arguments, side1 and side2, and returns a double-precision floating-point result.
  - b) Function intToFloat that takes an integer argument, number, and returns a floatingpoint result.
- vi Write a statement that opens the file "newmast.dat" for writing (and creation) and assigns the returned file pointer to nfpTr (2)
- vii. State whether the following are true or false. If the answer is false, explain why.  
The address operator (&) can be applied only to constants, to expressions and to variables declared with the storage-class register (2)
- viii. Write a single statement to accomplish each of the following. Assume that variables c (which stores a character), x, y and z are of type int, variables d, e and f are of type double, variable ptr is of type char \* and arrays s1[100] and s2[100] are of type char. (3)
  - a) Determine whether the value of variable c is a control character. Use the conditional operator to print " is a " or " is not a " when the result is displayed.
  - b) Read a line of text into array s1 from the keyboard. Do not use scanf.
  - c) Append 10 characters from the string in s2 to the string in s1.

**UNIT-I**

- Q.2. a. With example differentiate between the use of break and continue in C. (5)
- b. Write a program with a function that takes an integer value and returns the number with its digits reversed. For example, given the number 7631, the function returns 1367. (5)

OR

- Q.3. a. Write a C program to find sum of two matrix of order 3\*3 using multidimensional arrays where, elements of matrix are entered by user. (5)

- b. Write a program that uses a recursive function to calculate first n numbers of Fibonacci series. (5)

### UNIT-II

Q.4.a. Create union integer with members char c, short s, int i and long b. Write a program that inputs value of type char, short, int and long and stores the values in union variables of type union integer. Each union variable should be printed as a char, a short, an int and a long. Do the values always print correctly? (5)

b. Write a program in C to implement a stack using a linked list. Implement functionality to create a stack dynamically if the user wants and then add, delete and display elements of the stack using linked list (5)

OR

Q.5.a. Write a program that sorts an array of integers into ascending or descending order. Use command-line arguments to pass either argument -a for ascending order or -d for descending order. (5)

b. Differentiate between pointer to array and array of pointers with an example (5)

### UNIT-III

Q.6. a. Write a program that inserts 25 random integers from 0 to 100 in order in a linked list. The program should calculate the sum of the elements and the floatingpoint average of the elements. (6)

b. Write a program to compare two files, printing the first line where they differ. (4)

OR

Q.7. a. Explain the advantage of using a macro over a constant in C program. Write a program that defines a macro with one argument to compute the volume of a sphere. The program should compute the volume for spheres of radius 1 to 10 and print the results in tabular format.

The formula for the volume of a sphere is  $(4.0 / 3) * \pi * r^3$  where  $\pi$  is 3.14159. (1+4)

b. Write a program in C that reads a file and counts the number of blank spaces, tab spaces and new lines in the file. (5)

\*\*\*\*\*ALL THE BEST\*\*\*\*\*