U.S.N ☐☐☐☐☐☐☐☐☐☐

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

(An Autonomous Institution affiliated to VTU, Belgaum)

First Semester. - Master of Computer Applications (MCA)

Semester End Examination; Jan/Feb - 2016

Problem Solving Using C

Time: 3 hrs   *Max. Marks: 100*

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

UNIT - I

1 a.	What is a flowchart? Give its advantages.	4
b.	Write a flowchart to show the process of compiling and running a C program.	6
c.	What is an algorithm? Write an algorithm to find the smallest number, biggest number and average of a set of numbers.	10
2 a.	Explain the different operators supported in C.	10
b.	Write short notes on, i) Overflow and underflow of data. ii) Type conversion in expression.	10

UNIT - II

3 a.	Explain the input and output functions for a character.	4
b.	Write a C program to check whether the entered character is a letter, digit or alphanumeric.	6
c.	Discuss about formatted input and output with an example.	10
4 a.	What is an array? Give the different types of array.	4
b.	With illustration, show the different ways of initializing an array.	6
c.	Write a C program to add 2 matrices and display the resultant matrix.	10

UNIT - III

5 a.	Explain different string functions.	4
b.	Compare and contrast between iterative and recursive functions with examples.	6
c.	Write a C program to count the number of characters in the entered string.	10
6 a.	Give illustrations to show the working of automatic, external, static and register variables.	10
b.	Write a C program to sort an array of integers by using the functions by naming them as read ( ), sort ( ) and display ( ).	10

UNIT - IV

7 a.	What is a Structure and Structure within a Structure? Give its applications.	5
b.	Differentiate between Structure and union.	5
c.	Write a C program using structure to store details of 5 students with name, USN, internal marks and external marks in 3 subjects. Calculate the total, percentage and display the result.	10

8 a. Explain the working of pointers with examples. 10

   b. Write and explain a C program to demonstrate pointer to a structure variable. 10

UNIT - V

9 a. Explain the high level I/O functions of file with examples. 10

   b. A file named NUMERALS contains collection of integers. Code a program to read these numbers and then write all +ve numbers to a file called POSITIVE and all – ve number to a file called NEGATIVE and 0 to a file called NO-NUMBER. 10

10 a. Explain the functions of dynamic memory allocation with illustration. 10

   b. Show the coding and advantages of macro substitution, argument macro substitution and nested macro substitution. 10

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