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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. 10
 - ii) Type conversion in expression.

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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