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

(An Autonomous Institution affiliated to VTU, Belagavi)

First Semester, Master of Computer Applications (MCA)

Semester End Examination; Jan. - 2020

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 algorithm? Write an algorithm for finding the biggest of three numbers. 8
- b. Write the need of flowchart. 4
- c. Explain the following:
 - i) Tokens
 - ii) Variables 8
 - iii) Keywords
 - iv) Constants
- 2 a. Write an algorithm for generating N Fibonacci numbers. 6
- b. Discuss the different operators supported by C language with example. 10
- c. Evaluate the following expression when, $a = 10, b = 3, c = 8, d = 6, e = 4$;
 - i) $a - b \% c + d / e$
 - ii) $a + b-- + c++$ 4
 - iii) $a - b / c + d$
 - iv) $a * b + c * d$

UNIT - II

- 3 a. Explain different types of selection statements in C with example. 8
- b. Discuss about ternary operator with example. 2
- c. What is an array? Write a C program to read array elements and display array elements. 10
- 4 a. Explain different types of looping statements with example. 6
- b. Write a C program to check whether the given number is Even or Odd using bitwise operator. 8
- c. Explain the following with example:
 - i) Switch statement 6
 - ii) goto statement

UNIT - III

- 5 a. What is a Function? Write the general form of Function. Explain the different categories of function with example. 10
- b. List the need of function. 4
- c. Write a C program to compare two strings without using string functions. 6
- 6 a. What is Recursion? Write a C program to find factorial of a given number using Recursion. 6
- b. Write a C program for finding average of N numbers using function. 8
- c. Explain about call by value and call by reference. 6

UNIT - IV

- 7 a. Create a structure of student with the following information:
- i) Student_name
 - ii) Student_age
 - iii) Student_marks
- Write a C program to input the information of five students and display the details of all students.
- b. Differentiate between Structure and Union. 5
- c. Explain about bit fields with example. 5
- 8 a. What is a pointer? List the drawbacks of pointer. 4
- b. What is a Union? Explain with example. 6
- c. Write a C program to show how the members of a structure could be accessed, using pointers? 10

UNIT - V

- 9 a. What is dynamic memory allocation? Explain malloc(), calloc() and realloc() with example. 8
- b. Differentiate between static memory allocation and dynamic memory association. 4
- c. What is a Preprocessor directive? List the different types of Preprocessor directives and explain any two. 8
- 10 a. What is File? Explain fopen(), fclose(), fread() and fwrite() with example. 10
- b. Write a C program to read a data from one file called INPUT.txt and write the same data to the OUTPUT.txt file? 10

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