

--	--	--	--	--	--	--	--	--	--



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 - 2017

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. Define algorithm. Write an algorithm to find the largest of N numbers. 8
- b. What is an identifier? What are the rules to be followed to form an identifier name? Explain with examples. 6
- c. What is a data type? Explain how to define basic data type with examples? 6
- 2a. Write a flow chart to find the roots of a quadratic equation. 8
- b. What is a constant? Describe various types of constants that can be defined in C. 8
- c. Evaluate the value of a, b, c and d. Assume a = 2, b = 3, c = 4 and d = 5,
`printf ("a = %d b = %d", a++, ++b);` 4
`printf ("c = %d d = %d", --c, d--);`

UNIT - II

- 3 a. Explain with example, formatted input and output. 6
- b. Write a C program to simulate the functions of a simple calculator using switch statement. 4
- c. What is the output for the following format specifications? Assume a = 123.45 4
- i) `printf("%6.5f",a);` ii) `printf("%-5.2f",a);`
 iii) `printf("%f",a);` iv) `printf("%2.3f",a);`
- d. Evaluate the value of a, b, and c. Assume a = 5, b = 8 and c = 6,
`printf("a=%d a=%d", ++a, a++)` 6
`printf("b=%d b=%d", ++b, --b)`
`printf("c=%d c=%d", --c, ++c)`
- 4 a. Write a C program to read two matrices A(M x N) and B(P x Q) and compute the product of A and B. Output the input matrices and resultant matrix. 10
- b. Explain *for* loop and *while* loop with examples. 10

UNIT - III

- 5 a. With examples, explain how to declare and initialize string variables? 4
- b. Write a C program to compare two strings without using string function. 4
- c. Write a C program to compute mean, variance and standard deviation using functions. 12

- 6 a. Explain the various string manipulation functions in C. 8
- b. Write a C program to read a matrix A (M x N) and find the following using user defined functions :
 - i) Sum of the elements of each row 12
 - ii) Sum of the elements of each column
 - iii) Sum of all the elements of the matrix.

UNIT - IV

- 7 a. Write a C program to calculate the subject-wise and student-wise totals for three subjects and store them as a part of the structure. 12
- b. Write a C program using pointers to exchange the values stored in two locations in the memory. 8
- 8 a. Define structure. How structure variables are declared and structure members are accessed? Explain with an example. 12
- b. What is a pointer? Write a C program using pointers to compute factorial of a given number. 8

UNIT - V

- 9 a. Write a C program to read data from the keyboard, write to a file called INPUT, again read the same data from the INPUT file, and display it on the screen. 10
- b. Explain any five file handling functions with example. 10
- 10a. What is dynamic memory allocation? Explain malloc() and realloc() functions. 10
- b. With example, explain any five preprocessor directives. 10

* * *