



P.E.S. College of Engineering, Mandya - 571 401
 (An Autonomous Institution affiliated to VTU, Belagavi)
Second Semester, B.E. - Semester End Examination; June - 2017
Computer Concepts and C Programming
 (Common to all Branches)

Time: 3 hrs

Max. Marks: 100

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

UNIT - I

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| 1 a. Define Algorithm. Explain its characteristics. | 6 |
| b. What is a unary operator? Illustrate the use of increment and decrement operators. | 5 |
| c. Differentiate between constants and variables. Explain basic data types supported by C language. | 9 |
| 2 a. Explain the symbols used in flow chart. Draw a flow chart to find roots of a quadratic equation. | 10 |
| b. Explain the following operators in C : | |
| i) Relational operators | 10 |
| ii) Logical operators. | |

UNIT - II

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| 3 a. Explain <i>printf()</i> and <i>scanf()</i> statements used in C language, with the help of examples. | 10 |
| b. Distinguish between <i>while</i> loop and <i>do-while</i> loop. Explain how <i>for</i> loop works. | 10 |
| 4 a. Explain each of the following with an example : | |
| i) if-else ladder | 10 |
| ii) ternary operator | |
| iii) un-conditional branching | 10 |
| iv) formatted output and input statements. | |
| b. With general syntax, explain <i>switch</i> statement. Illustrate the use of <i>switch</i> statement in C program “to display name of months” by accepting integer from 1 to 12. | 10 |

UNIT - III

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| 5 a. Explain 2D array with an example. Write a C program to print transpose of a given 3 X 3 matrix. | 10 |
| b. Explain any three string handling functions in C language with example. | 6 |
| c. Distinguish between Linear search and Binary search techniques. | 4 |
| 6 a. What is an array? List any two types of array. For each type, describe how declaration and initialization is done with an example? | 10 |
| b. Write a C program that implements selection sort algorithm for sorting an array of <i>n</i> elements in descending order. | 10 |

UNIT - IV

- 7 a. What is the use of a function? Write a C program to find LCM of two numbers using user defined function. 6
- b. Write a C program to find factorial of a given number using recursive function. 4
- c. What is a pointer? How do you declare a pointer variable? Explain. Write a C program using pointers to swap two numbers. 10
- 8 a. Briefly explain the different ways of passing parameters to functions with examples. 8
- b. Illustrate the use of address operator and indirection operation in pointers. List any two benefits of using pointers in C program. 6
- c. Write a C program to compute sum of all the digits of a given integer number (atleast 3 digit number), use function in the program appropriately. 6

UNIT - V

- 9 a. What is a structure? Explain the different ways of initializing structures. 6
- b. With suitable example, explain how files are handled in C using *open* and *close* functions? 4
- c. Write a C program to maintain *N* student's details with 6 fields (Reg.No., Name, M1, M2, M3, Result). Calculate total marks and print the result according to a given student register number. 10
- 10a. Distinguish between the following with an example :
- | | | |
|---|--|---|
| i) Structure and Array | ii) Structure and Union | 8 |
| iii) <i>fopen()</i> and <i>fclose()</i> | iv) <i>fscanf()</i> and <i>fprintf()</i> . | |
- b. Discuss how structures are declared and its members are accessed? 4
- c. Write a C program to open a text file, read the data, perform the operation on data and display the result. Assume content of file suitably. 8

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