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

(An Autonomous Institution affiliated to VTU, Belagavi)

First Semester, B.E. - Semester End Examination; April - 2021

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

- 1 a. List and explain the factors affecting the speed of a computer. 4
- b. Write an algorithm to find all possible roots of a quadratic equation. 8
- c. Explain the structure of C program. 8
- 2 a. Write a flowchart to find the area of a triangle which is given by the formula
 $A = \sqrt{s(s-a)(s-b)(s-c)}$. Where a, b, c are sides of a triangle and $2s = a + b + c$. 6
- b. Explain relational operators in C with an example. 6
- c. Determine the value of each of the following C statement. Each statement is independent if,
 $x = 10, y = 15$ and $z = 2$
- i) $x = x < y ? (x >> 2); (y << 2)$
- ii) $x = x++ + ++y$ 8
- iii) $z = \frac{(x+y)}{3} + \frac{3*y}{4}$
- iv) $A = x > 15 \& \& y < 0 || 5 > 0$

UNIT - II

- 3 a. Explain the following C functions:
- i) getch() 6
- ii) scanf() 6
- iii) printf() 6
- b. With general syntax and flowchart, explain else-if ladder in C. 6
- c. Implement simple calculator program to support operation +, -, /, * using switch statement. 8
- 4 a. With general syntax and flowchart, explain do while and while statement. 6
- b. Write a C program to print multiplication table (from 2 to 10) using nested for loop with neat output format. 8
- c. Write a C program to find the factorial of a given number. 6

UNIT - III

- 5 a. Illustrate with an example different ways of initializing one dimensional array. 6
- b. Write a program to print all even number in an array of size n. 8
- c. Explain any three string handling functions. 6

- 6 a. Write a program to find the product of two matrix $A(m \times n)$ and $B(p \times q)$. 8
- b. Write a program to check whether the given element is present in an array or not using linear search technique. 6
- c. Define string. Explain how to initialize and read the string with an example? 6

UNIT - IV

- 7 a. Explain the elements of user defined functions. 8
- b. Write a program using function to swap two numbers. 8
- c. Give any two differences between local and global variables. 4
- 8 a. With an example, explain any two ways of passing parameters to a function. 8
- b. Define pointer. List the advantage of pointer. With an example, explain how to declare pointer variable? Also write the expression to access i^{th} element of one dimensional array using pointer notation. 6
- c. Using function, write a C program to find the sum of all the elements of an array. The content of array is of type float. 6

UNIT - V

- 9 a. Explain the following with an example:
- i) Declaring of sturcture containing array 9
 - ii) Initializing the structure containing array
 - iii) Accessing member array
- b. Define a structure by name COMPLEX, with two data members real and img of type float, using this structure write a program to perform addition of two complex numbers. 9
- c. Give the declaration of union with an example. 2
- 10 a. Write a program to copy the content of one text file to another text file. 8
- b. Explain the following functions:
- i) fopen() 6
 - ii) fgetc()
 - iii) fputs()
- c. Explain types of files. 6

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