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Branch/ Semester : B.Tech (1<sup>st</sup> Year) Subject Code : CS-101  
Subject Name : Computer Programming Duration : 3 Hrs  
Date : 22/02/2023 Max. Marks : 50

- Q. 1 What are the different ways of passing data to functions in C? Explain (5) each with an example. In what conditions is one method preferable over other methods?
- Q. 2 Draw the block diagram of a computer system and discuss about its (5) components.
- Q. 3 A positive integer is entered through the keyboard, write a function to (5) find the binary equivalent of this number: (i) Without using recursion. (ii) Using recursion.
- Q. 4 Explain the storage classes in c with example programs. (5)
- Q. 5 There is a structure called **employee** that holds information like employee (5) code, name and date of joining (dd mm yyyy). Write a program to create an array of structures and enter some data into it. Then ask the user to enter current date. Display the names of those employees whose tenure is greater than equal to 3 years.
- Q. 6 Write a program in C using a function to print the sum of all prime (5) numbers between two user input numbers, passed as arguments to the function and display the sum in calling function.
- Q. 7 What is dynamic memory allocation? How is it different from static (5) memory allocation? Create a one dimensional integer array using dynamic memory allocation to read 'n' numbers. Display the largest odd number amongst all the numbers.
- Q. 8 Write a C program to read name and marks of n number of students from (5) user and store them in a file.
- Q. 9 Explain the different operators in c language with suitable example. (5)
- Q. 10 Design an algorithm with a natural number, n, as its input which (5) calculates the following formula and writes the result in the standard output:

$$S = \frac{1}{2} + \frac{1}{4} + \frac{1}{6} + \dots + \frac{1}{n}$$