CBCS SCHEME

USN | | | | | | | | | | |

21PSP13/23

First/Second Semester B.E. Degree Examination, July/August 2022
Problem Solving Through Programming

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. Discuss various generations of computers, highlighting features of each one. **(10 Marks)**

b. With the basic structure of a C program and explain with an example. **(10 Marks)**

OR

2 a. Differentiate primary memory and secondary memory. **(05 Marks)**

b. List and explain logical operators and analyze the following code and write the output with proper reasoning.

```
#include <stdio.h>
void main( )
{
   printf("7 && 0 = % d\n", 7 && 0);
   printf("7 || 0 = % d\n", 7 || 0);
   printf("!0 = %d", !0);
}
```

(10 Marks)

c. Discuss basic data types supported in 'C'. **(05 Marks)**

Module-2

3 a. Write a C program to find roots of a quadratic equation. **(10 Marks)**

b. Write the syntax of switch statement and explain with a suitable example. **(10 Marks)**

OR

4 a. Write the syntax of while and do-while statements. Also, list differences between them with example. **(06 Marks)**

b. Write a C program to print whether a given integer number is palindrome or not. **(07 Marks)**

c. Discuss break and continue statements with suitable examples. **(07 Marks)**

Module-3

5 a. Define arrays and discuss various ways of initializing 1D array with examples. **(10 Marks)**

b. Write a C program to sort given integers in ascending order and using selection sort and trace by taking 5 integers. **(10 Marks)**

OR

6 a. Define strings and explain how they are declared and initialized. **(06 Marks)**

b. Write a C program to search for a given number in an array using binary search technique. **(08 Marks)**

c. Explain any 6 string manipulation functions with example. **(06 Marks)**

Module-4

7 a. What is a user defined function? Discuss different categories of user defined functions with appropriate example for each. **(10 Marks)**

b. Write a recursive function to find factorial of a number. **(06 Marks)**

c. Discuss storage class specifiers. **(04 Marks)**

OR

8 a. Define recursion. Write a recursive program to find n^{th} Fibonacci number. **(08 Marks)**

b. Write a program to find GCD and LCM of 2 numbers. **(08 Marks)**

c. What are the advantages of writing user defined functions? **(04 Marks)**

Module-5

9 a. Differentiate structures and unions with syntax and example. **(06 Marks)**

b. Write a C program to swap 2 numbers and use the same to explain advantage of call by reference method over call by value method. **(09 Marks)**

c. List any 5 preprocessor directives in C. **(05 Marks)**

OR

10 a. Write a C program to add 2 complex numbers using structures. **(06 Marks)**

b. Write a C program to compute sum, mean and standard deviation of all elements stored in an array using pointers. **(10 Marks)**

c. What are pointers? Discuss pointer arithmetic with examples. **(04 Marks)**

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