

CBCS SCHEME



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15PCD13/23

First/Second Semester B.E. Degree Examination, Feb./Mar. 2022 Programming in C and Data Structures

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. Explain the structure of a C program. (08 Marks)
b. Classify the operators based on the number of operands. (04 Marks)
c. Evaluate the following expressions independent of each other.
int i = 5, j = 6, k = 4 ;
i) ++k% --j
ii) j + i/1 - i (04 Marks)

OR

- 2 a. Explain the primitive Data types available in C. (06 Marks)
b. With a neat syntax, explain printf() statement. Explain how the integer, character and the floating point number can be displayed using printf() statement. (05 Marks)
c. Write a C program to find the area of a triangle when the lengths of three sides are given
$$\text{Area} = \sqrt{s(s-a)(s-b)(s-c)}, \text{ where } s = \frac{(a+b+c)}{2}$$
 (05 Marks)

Module-2

- 3 a. With a neat syntax, explain the switch statement. (08 Marks)
b. Write a C program to find the square root of a given number N. (08 Marks)

OR

- 4 a. With a neat syntax, explain any two looping statements. (06 Marks)
b. Explain the following statements with one example for each : goto and continue. (04 Marks)
c. Write a C program to find the roots of a quadratic equation. (06 Marks)

Module-3

- 5 a. Explain the different parts of the function definition. (06 Marks)
b. Define string. Explain declaration and initialization of string. (04 Marks)
c. Write a C program to read a sentence and print the number of vowels and consonants. (06 Marks)

OR

- 6 a. What is an Array? Explain one dimensional and two dimensional arrays. (06 Marks)
b. Explain any two string manipulation functions. (04 Marks)
c. Define Recursion. Write a C program to find factorial of a number using Recursion. (06 Marks)

Module-4

- 7 a. What is the need of typedef? Explain with a neat syntax the form of a typedef for a structure. (06 Marks)
b. Explain the file handling functions. (04 Marks)
c. Explain structure within a structure with example. (06 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

OR

- 8 a. What is structure? With neat syntax and example, explain the structure definition and declaration. (06 Marks)
- b. Given two university information files "studentname.txt" and "usn.txt" that contains student Name and USN respectively. Write a C program to create a new file called "output.txt" and copy the content of files "studentname.txt" and "usn.txt" into output file in the sequence shown below. Display the contents of output file "output.txt".

Student Name	USN
Name 1	USN 1
Name 2	USN 2
:	:
:	:
:	:

(10 Marks)

Module-5

- 9 a. Define stack, Queue and Linked list. (06 Marks)
- b. Write a C program using pointers to compute the sum, mean and standard deviation of all elements stored in an array of a real numbers. (10 Marks)

OR

- 10 a. What is dynamic memory allocation? Explain any two Dynamic memory allocation functions. (06 Marks)
- b. Define pointers. Explain how the variable can be accessed through its pointer. (04 Marks)
- c. Write a C program to swap two variables using pointer and function. (06 Marks)
