

CBCS SCHEME

USN

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17PCD13/23

First/Second Semester B.E. Degree Examination, July/August 2021 Programming in C and Data Structures

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions.

- 1 a. Explain the structure of C program with an example. (05 Marks)
b. List all the arithmetic operators and write a C program to demonstrate arithmetic operators. (10 Marks)
c. What is type conversion? Explain two types of type conversion with an example in C language. (05 Marks)
- 2 a. Explain different types of input and output functions. (10 Marks)
b. Classify the following as valid/Invalid variable. If invalid give reasons. (05 Marks)
i) num2 ii) \$sum1 iii) tadd iv) a_2 v) auto.
c. Write a C program which takes as input P, T, R compute the simple interest and display the result. (05 Marks)
- 3 a. Write a C program to find the roots of quadratic equation. (10 Marks)
b. Explain different types of looping statements with an example. (10 Marks)
- 4 a. Write a C program to find largest of two numbers using ternary operator. (05 Marks)
b. Write a C program to print the following series.

1				
2	2			
3	3	3		
4	4	4	4	
5	5	5	5	5

- c. Mention and explain different types of unconditional statements with an example. (10 Marks) (05 Marks)
- 5 a. Write a C program to find the product of two matrices by checking the compatibility of order matrices. (10 Marks)
b. Define an array? Write a syntax for declaring single dimensional array and initialize the same with suitable example. (10 Marks)
- 6 a. Define function. Explain function declaration, function definition and calling function with an example. (10 Marks)
b. Write a C program to read a string from the keyboard and count the number of vowels and consonants. (05 Marks)
c. Illustrate actual parameters and formal parameters with an example. (05 Marks)

- 7 a. Explain the concept of array of structure with a suitable C program. (10 Marks)
b. Write a C program to maintain a record of "n" student details using an array of structures with four fields (Roll no, Name, Marks and Grade), each field is of an appropriate data type. Print the marks of the student of given student name as input. (10 Marks)
- 8 a. Explain typedef with suitable example. (05 Marks)
b. Explain fprintf() and fscanf() functions with syntax, give an example. (05 Marks)
c. Write a C program to create a new file called "output.txt" and copy the contents of files "studentname.txt" and "USN.txt" into output file. Display the contents of output file "output.txt" on the screen. (10 Marks)
- 9 a. What is a pointer? Write a program in C to find the sum and mean of all elements in an array using pointers. (10 Marks)
b. Explain Malloc() and Calloc() functions with an example. (05 Marks)
c. Define stack. List the application of stack. (05 Marks)
- 10 a. What is preprocessor directive? Explain #define and #include preprocessor directive with an example. (10 Marks)
b. Define queue. List the operations of queue. (05 Marks)
c. Discuss advantages and disadvantages of pointers. (05 Marks)
