

# CBCS SCHEME

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17PCD13/23

## First/Second Semester B.E. Degree Examination, June/July 2018 Programming in C and Data Structures

Time: 3 hrs.

Max. Marks: 100

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

### Module-1

- 1 a. Write basic structure of C program and explain its different sections. (08 Marks)  
b. What are the rules to be followed to declare an identifier with example? (04 Marks)  
c. Write a note on different types of Type conversions, with an example/program for each. (08 Marks)

OR

- 2 a. Define C – tokens. List and explain different C – tokens. (08 Marks)  
b. Write a C program to convert number of days into months and days. (Hint : Assume a month has 30 days) (For e.g. 45 days = 1 month and 15 days). (04 Marks)  
c. Write a note on Operator precedence and Associativity. (08 Marks)

### Module-2

- 3 a. An Electric power distribution company charges its domestic consumers as follows:

Consumption Units	Rate of charge
0 - 200	Rs 0.50 per units
201 - 400	Rs 100 + Rs 0.65 per unit excess of 200
401 - 600	Rs 230 + Rs 0.80 per unit excess of 400
601 - above	Rs 390 + Rs 1.00 per unit excess of 600

- Write a C program to compute and print amount to be paid by the customer. (08 Marks)  
b. Write the Syntax of different looping control constructs and explain their working. (08 Marks)  
c. Distinguish between the following :  
i) goto and if                      ii) break and continue. (04 Marks)

OR

- 4 a. Write the Syntax of nested if ...else statement and explain its working. (08 Marks)  
b. Write a C program to convert a decimal number to binary form. (08 Marks)  
c. Differentiate between do...while loop and while loop, with the help of Syntax. (04 Marks)

### Module-3

- 5 a. Write a C program to search a key integer element in the given array of N elements using binary search technique. Print the output with suitable headings. (08 Marks)  
b. Distinguish between the following types of variables :  
i) Automatic    ii) Global    iii) Static    iv) Register. (08 Marks)  
c. Explain the importance of strcmp ( ) and strcat ( ) string manipulation functions. (04 Marks)

OR

- 6 a. Write the Syntax and give an example for each : (08 Marks)  
i) Declaration of One – dimensional array    ii) Initialization of One – dimensional array  
iii) Declaration of Two – dimensional array    iv) Initialization of Two – dimensional array.

- b. Write a C program to find  $n^{\text{th}}$  term of Fibonacci series using recursion. (08 Marks)  
 c. Write a C program to find length of a string without using `strlen()` function. (04 Marks)

**Module-4**

- 7 a. Write a note on the following with an example for each : (08 Marks)  
 i) Arrays of structures ii) Arrays within structures iii) Structures within structures.  
 b. Write a C program to count the number of characters, Number of lines and number of white spaces from a file. (08 Marks)  
 c. Create structure `st_record` having members student Name (Sname) and student marks (Smarks). Write a C program which reads name and marks of two students and compare whether both students are same. (04 Marks)

**OR**

- 8 a. Mention importance of the following input/output file operations along with Syntax and example for each : (08 Marks)  
 i) `fscanf()` ii) `fprintf()` iii) `fopen()` iv) `fclose()`.  
 b. Create a structure `st_record` having members to store name of student, marks scored in three different subjects. Create a user defined function `cal-average()` to compute average marks scored by the student. Write a C program which reads details of a student and prints whether a student is pass or fail. (08 Marks)  
 c. Mention syntax and give an example for the following : (04 Marks)  
 i) Structure definition ii) Structure variable declaration.

**Module-5**

- 9 a. Write Syntax and give an example of function declaration of the following : (08 Marks)  
 i) `malloc()` ii) `calloc()` iii) `realloc()` iv) `free()`.  
 b. Write a note on categories of pre – processor directives. (08 Marks)  
 c. List two disadvantages of : i) Arrays ii) Linked lists. (04 Marks)

**OR**

- 10 a. Write a note on the following data structures : (08 Marks)  
 i) Linked list ii) Stack.  
 b. Write a C program which copies contents of a string to another using pointer as function parameter. Print copied string. (08 Marks)  
 c. Mention significance of compiler control Pre – processor directives. (04 Marks)

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