CBCS SCHEME

USN ⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚   **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 nth 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 :
   i) Structure definition   ii) Structure variable declaration. **(04 Marks)**

Module-5

9 a. Write Syntax and give an example of function declaration of the following :
   i) malloc ( )   ii) calloc ( )   iii) realloc ( )   iv) free ( ). **(08 Marks)**

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 :
   i) Linked list   ii) Stack. **(08 Marks)**

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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