

# 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 : (04 Marks)
    - i) goto and if
    - ii) break and continue.

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 : (08 Marks)
  - i) Automatic
  - ii) Global
  - iii) Static
  - iv) Register.
- 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.





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- 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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