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**B.C.A. (Ist – Semester) Examination, 2018**

**Paper II : Programming Principles & Algorithm (BCA S102T)**

1. (a) Design an algorithm to computer the first ten terms of the following series :

   0, 1, 1, 2, 3, 5, 8, .....

   Convert the above algorithm into a well documented C program. 8

   (b) Explain the syntax of the switch statement with an example. 7

2. Write a recursive program in C language to computer the factorial of input number N where value of N is accepted from the keyboard at run time. 15

3. (a) In a C program, print all the prime numbers from 1 to 200. 7 + 8

   (b) Write a C program using the switch case facility to incorporate multiway branching for converting an integer number from 1 to 12 to the name of the corresponding month in the following way :

   1 → Januart

   2 → February

   3 → March .....12 → December

   The program should accept an integer input from '1' to '12' and print the name of the corresponding month in words.

4. (a) Write a C prgaram to compute the square and square root of an integer A after reading the value of A from the keyboard. 7 + 8

   (b) Write the algorithm and C program for testing whether an integer N is a perfect number. 7

5. (a) What do you understand by bitwise and logical operators ? Discuss with examples. 8 + 7

   (b) Why is C known as a functional language ? What are the basic structures of C programming ? Explain each with a specific example and syntax.

6. Illustrate with examples : 5 + 5 + 5

   (a) Nested loop

   (b) Break and Continue

   (c) Recursion

7. What do you understand by the Binary Search technique ? What are its preconditions ? Trace it out on a randomly distributed list of numbers. 15

8. Write short notes on : 15

   (a) Big-on Notation

   (b) Pseudo Code

   (c) Header files and their use.

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