B. Tech. (All Branches) (Semester – 1ˢᵗ /2ⁿᵈ)
PROGRAMMING FOR PROBLEM SOLVING
Subject Code: BCSCE0101
Paper ID: [19110017]

Time: 03 Hours   **Maximum Marks: 60**
Instruction for candidates:
1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A   **(2 marks each)**
Q1. Attempt the following:
   a. Write difference between algorithm and flowchart.
   b. What is format specifier? Define keyword, constant and variable.
   c. Distinguish between while and do-while statements.
   d. Write a short note on type casting.
   e. Explain the following preprocessor directives: #include and #define.
   f. Why do we use header files?
   g. What is a function? Write the types of functions.
   h. What are the Different file operations?
   i. What is meant by call-by value and call-by reference?
   j. Define pointer. How can you declare it?

Section – B   **(5 marks each)**
Q2. What is recursion? How do you print a fibonacci sequence using recursion?
Q3. Discuss about the following operators in C language with example.
   a. Bitwise operators
   b. Increment and decrement operators
   c. Logical operators
Q4. Distinguish between the following:
   a. Actual and formal arguments
   b. Global and local variables
   c. Automatic and static variables
Q5. Write a C program to read and print an array of elements using pointers.
Q6. Explain the following file handling functions:
   a. fseek()
   b. ftell()
   c. rewind()
   d. feof()

Q7. Write the structure of C program and explain. Also, write a program to perform swapping of two numbers without using temporary variable.

Q8. What is a nested loop? Write a program to display the following pattern.

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*****
****
***
**
*
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Q9. Explain the following string handling functions with example:
   a. strcpy()
   b. strcmp()
   c. strcat()
   d.strlen()
   e. strncat()