B. TECH
(SEM I) THEORY EXAMINATION 2018-19
COMPUTER SYSTEM & PROGRAMMING IN C

Time: 3 Hours   *Total Marks: 70*

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1.   **Attempt *all* questions in brief.**   **2 x 7 = 14**

   a.   List out the difference between Logical errors and Syntax errors.
   b.   What do you mean by Linked List?
   c.   Define pre-processor in C. Name the different types of pre-processor directives.
   d.   What is the output of following (Consider no syntax error in code)?
```
void main ( )
{
int i=1;
   for ( ;i<=10;i++) ;
printf(“%d”, i);
}
```
   e.   Write down the syntax of Entry control loop and Exit control loop.
   f.   What do you understand by function call, function declaration and function definition?
   g.   List any three file opening modes and their meaning in C.

SECTION B

2.   **Attempt any *three* of the following:**   **7 x 3 = 21**

   a.   What is operating system? Explain main four functions of operating system.
   b.   What is the role played by the break statement within the switch statement? Explain with example.
   c.   What is the difference between call by value and call by reference? Write a program to swap two floating point numbers using call by reference method.
   d.   What is a 2-D array? Write a program to multiply two matrices.
   e.   Compare structure and union in 'C'. Write a C program to store the student details using structure.

SECTION C

3.   **Attempt any *one* part of the following:**   **7 x 1 = 7**

   (a) What is data type? Explain different data types used in C language including their range and size?
   (b) Explain different types of storage classes on the basis of attributes such as storage, default initial value, scope, and lifetime.

4.   **Attempt any *one* part of the following:**   **7 x 1 = 7**

   (a) Explain the associativity and precedence of an operator. Write down the difference between associativity and precedence.
   (b) Write a program to convert lower case input character into upper case and upper-case input character into lower case.

5. **Attempt any *one* part of the following:** 7 x 1 = 7

    (a)   Write a program in C to print all the prime numbers between 1 to 200.

    (b)   Explain the principle of recursive function. What are its basic properties? Write a function which finds the factorial of first n integers; where n is the argument to the function.

6. **Attempt any *one* part of the following:** 7 x 1 = 7

    (a)   Write a program in C to reverse a string through pointer.

    (b)   Explain the concept of sorting and list out any three sorting techniques. Write a function in C for selection sort.

7. **Attempt any *one* part of the following:** 7 x 1 = 7

    (a)   What do you mean by dynamic memory allocation? Explain the malloc(), calloc() function in detail.

    (b)   List out various file operations in C. Write a C program to count the number of characters in a file.