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**BTECH**  
**(SEM I) THEORY EXAMINATION 2021-22**  
**COMPUTER SYSTEM & PROGRAMMING IN C**

**Time: 3 Hours****Total Marks: 70****Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.

**SECTION A**

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

|    |   |
|----|---|
| a. | Make a hierarchy of different memories available in computer.   |
| b. | Differentiate between Compiler and Interpreter.   |
| c. | Write the difference between Logical error and Syntax error.  |
| d. | What is the output of the following code?<br><pre>int a = 6;<br/>b = ++a + a++ - a;<br/>printf("a=%d, b=%d",a,b);</pre> |
| e. | What is the difference between & and && operators?  |
| f. | Differentiate between Formal arguments and actual arguments.  |
| g. | Define Enumerated data type.  |

**SECTION B**

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

|    |  |
|----|--|
| a. | Draw a neat and clean block diagram of a computer. Explain the functioning of each component with suitable example.                        |
| b. | Compare different Storage Classes of C language in terms of storage, default initial value, scope, and life with suitable example of each. |
| c. | Write a program in C to check whether the sum of individual digits of a number is even or odd.   |
| d. | Define recursion. Write a program to find the factorial of a number using recursive function.  |
| e. | Differentiate among malloc(), calloc() and realloc() functions with example.   |

**SECTION C**

**3. Attempt any one part of the following:****7x1=7**

|     |   |
|-----|---|
| (a) | Design an algorithm to find the largest of three numbers and convert into a flowchart.    |
| (b) | Design an algorithm to find the roots of quadratic equation and convert into a flowchart. |

**4. Attempt any one part of the following:****7x1=7**

|     |  |
|-----|--|
| (a) | Differentiate between precedence of operators and associativity of operators with suitable example   |
| (b) | Differentiate between type conversion and type casting. Write a program in C to input a floating-point number and find rightmost digit of this number. |



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5. Attempt any *one* part of the following:

7x1=7

|     |   |
|-----|---|
| (a) | Define looping and write a program in C to print the following pattern<br>5 4 3 2 1<br>5 4 3 2<br>5 4 3<br>5 4<br>5 |
| (b) | Differentiate between while and do while and write a program to check whether a number is prime or not.             |

6. Attempt any *one* part of the following:

7x1=7

|     |   |
|-----|---|
| (a) | Define sorting and write a program to sort given numbers in ascending order.                        |
| (b) | Define linear searching and write a program to search maximum and minimum from the list of numbers. |

7. Attempt any *one* part of the following:

7x1=7

|     |   |
|-----|---|
| (a) | What is pointer? Write difference between call by value and call by reference with example.   |
| (b) | Define the following functions: fopen(), fclose(), getc(), putc(), fscanf(), ftell(), fseek() |