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

**Time: 3 Hours****Total Marks: 100****Note:** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A****1. Attempt all questions in brief.****2x10 = 20**

a.	What is the task of a loader?
b.	Write down the advantages and disadvantages of machine level language.
c.	Determine the value of the following logical expressions if a=5, b=10 i. $a > b \ \&\& \ a < b$ ii. $a > b \ \&\& \ a > b$
d.	Prepare an expression using ternary operator to find maximum of three numbers
e.	Differentiate between break and continue
f.	What will be the output of following? <pre>#include&lt;stdio.h&gt; void main() { int i; for(i=0;i&lt;=10;i++); printf("hello"); }</pre>
g.	What is prototyping? Why it is necessary?
h.	An array is declared as <code>int a [100];</code> If the base address of the array is 5000, what will be the address of a[59]. (Consider the 16 bit machine architecture).
i.	Explain the statement fseek (fp, m, 1).
j.	How a structure is different from union?

**SECTION B****2. Attempt any three of the following:****10x3 = 20**

a.	Classify the computers according to generation.
b.	Define algorithm and explain the characteristics of Algorithm. Write an algorithm to find the roots of a quadratic equation.
c.	What do you mean by type-casting? Explain with a suitable example.
d.	Write a program to add the contents of an array using pointer.
e.	How entry-controlled loop is different from exit-controlled loop? Write a program to print the pattern 1 2 3 4 5 6 7 8 9 10

**SECTION C****3. Attempt any one part of the following:****10x1 = 10**

a.	Differentiate between compiler and interpreter.
b.	Convert the following i. $(231)_8 = ( )_{16}$ ii. $(359)_{10} = ( )_2$



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4. Attempt any *one* part of the following: 10x1 = 10

a.	What is the use of flow charts? Explain the symbols used in a flowchart. Draw a flowchart to find the maximum among three input numbers.
b.	What do you mean by operator precedence and associativity? Explain with a suitable example.

5. Attempt any *one* part of the following: 10x1 = 10

a.	Give the syntax and explain the working of switch-case statement. Write a program to implement the menus based basic calculator using switch case
b.	Identify the use of modular programming? Write a program by using user define function to check given number is prime or not. Porotype of function should be like this <code>int is_prime(int)</code> .

6. Attempt any *one* part of the following: 10x1 = 10

a.	Illustrate the different ways to input a string in C language. Write a program to count the number of words and number of characters in an input string.
b.	What are the drawbacks of static memory allocation? Explain the functions available in C language to allocate memory dynamically.

7. Attempt any *one* part of the following: 10x1 = 10

a.	Define scope and lifetime of a variable. Explain in detail about all storage classes supported in C language with reference to scope and lifetime.
b.	How a structure is different from union? Write a program to store 100 players details such as Player Name, Country Name and batting average. Using the database Display the details of the players who are playing for a given country.