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**BTECH**  
**(SEM II) THEORY EXAMINATION 2021-22**  
**PROGRAMMING FOR PROBLEM SOLVING**

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

Qno	Questions	CO
(a)	Differentiate between void and int datatypes.	1
(b)	Draw the Pyramid structure of memory hierarchy.	1
(c)	Describe the syntax and working of Ternary operator.	2
(d)	Write advantages of Switch statement.	2
(e)	Find the output: <pre>#include &lt;stdio.h&gt; int main() {     int a=100;     printf("%d\n"+1, a);     printf("Value is = %d"+3, a);     return 0; }</pre>	3
(f)	Define function and its type.	3
(g)	Find the output: <pre>#include&lt;stdio.h&gt; int main() {     int arr[1]={10};     printf("%d\n", 0[arr]);     return 0; }</pre>	4
(h)	Define time and space complexity. What is the complexity of bubble sort?	4
(i)	Find the output: <pre>#include&lt;stdio.h&gt; int main() {     printf("%d", sizeof(void *));     return 0; }</pre>	5
(j)	What is the requirement of FREE() function in Dynamic memory allocation.	5

**SECTION B****2. Attempt any three of the following:****10x3 = 30**

Qno	Questions	CO
(a)	Discuss the various symbols used in flow chart and Draw the flow chart to find the reverse of a number.	1
(b)	Illustrate the concept of type conversion and type casting with program.	2
(c)	Write a program to print the pattern 1 12 123 1234 123 12 1	3



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(d)	Explain bubble sort concept and write the program.	4
(e)	Discuss about the command line argument with example.	5

**SECTION C**

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

Qno	Questions	CO
(a)	Explain the different kind of storage classes in C programming.	1
(b)	Draw the architecture of Digital computer System and explain its all components.	1

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

Qno	Questions	CO
(a)	Define Operator and Operands. Discuss about the different type of operators used in programming.	2
(b)	What is use of break in switch case? Write a program to develop a calculator using case in character format.	2

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

Qno	Questions	CO
(a)	Write a Program for pattern ***** **** *** ** * ** *** **** *****	3
(b)	Write a program to print the Fibonacci series using recursive function. Take the limit from the user as input.	3

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

Qno	Questions	CO
(a)	Write a program for the selection sort and explain it with example.	4
(b)	Write a program to find the product of two 2-dimensional array and print the output in separate array.	4

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

Qno	Questions	CO
(a)	Write a program to allocate the memory with dynamic memory allocation concept. Take the input from the user and find the sum of all elements.	5
(b)	Discuss about the file handling concept and write a program to copy the content of one file to another and print the count of these coping elements.	5