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

Time: 3 Hours**Total Marks: 100****Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A****1. Attempt all questions in brief.****2 x 10 = 20**

| Qno. | Question | Marks | CO |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----|
| a. | Differentiate between algorithm and pseudocode. | 2 | 1 |
| b. | What are header files? Why are they important? | 2 | 1 |
| c. | Find the output of the following code: void main() { int x=3 , y = 4 , a=6 , z=7,result ; result = (x>y) + ++a !c ; printf(“%d”, result); } | 2 | 2 |
| d. | Write limitations of switch case. | 2 | 2 |
| e. | Show the usage of break statement. | 2 | 3 |
| f. | Differentiate between scope and lifetime of variable. | 2 | 3 |
| g. | Write limitations of subscript operator in an array. | 2 | 4 |
| h. | Compare linear and binary search in terms of complexity. | 2 | 4 |
| i. | Find the output of the following code: void main() { int a ,*p; //value of a is input by the user and assumed it is equal to 7. p = &a; scanf(“%d”, p); printf(“%d”,a); } | 2 | 5 |
| j. | Explain the significance of End of File (EOF). | 2 | 5 |

SECTION B**2. Attempt any three of the following:****3x10=30**

| Qno. | Question | Marks | CO |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----|
| a. | Draw block diagram of computer and explain each of its components in brief. | 10 | 1 |
| b. | Differentiate between type conversion and typecasting. Write a program to input a floating-point number and find leftmost digit of integral part of a number. | 10 | 2 |
| c. | Write a program to find the sum of series using function 1! + 2! + 3! + 4! +----- n terms. | 10 | 3 |
| d. | Write a program to find transpose of matrix. | 10 | 4 |
| e. | Why are preprocessor required? Explain any two preprocessor directives | 10 | 5 |



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SECTION C

3. Attempt any *one* part of the following: 1x10=10

| Qno. | Question | Marks | CO |
|------|----------------------------------------------------------------------------|-------|----|
| a. | Define flowchart and draw a flowchart to find largest among three numbers. | 10 | 1 |
| b. | Explain in detail about all storage classes with proper example. | 10 | 1 |

4. Attempt any *one* part of the following: 1x10=10

| Qno. | Question | Marks | CO |
|------|------------------------------------------------------------------------------------------------------------------|-------|----|
| a. | Explain Logical, Unary and Bitwise operators in detail. | 10 | 2 |
| b. | Compare if-else-if ladder and switch case. Write a menu driven program to perform basic functions of calculator. | 10 | 2 |

5. Attempt any *one* part of the following: 1x10=10

| Qno. | Question | Marks | CO |
|------|------------------------------------------------------------------------------------|-------|----|
| a. | Define recursion. Write a program to find sum of Fibonacci series using recursion. | 10 | 3 |
| b. | Differentiate between call by value and call by reference with proper example. | 10 | 3 |

6. Attempt any *one* part of the following: 1x10=10

| Qno. | Question | Marks | CO |
|------|----------------------------------------------------------------------------------------------------------|-------|----|
| a. | Implement sorting technique using bubble sort on the following sequence: 34,78 ,12, 5 ,3, 98, 101, 15 | 10 | 4 |
| b. | What is searching? Write a program to implement linear search. | 10 | 4 |

7. Attempt any *one* part of the following: 1x10=10

| Qno. | Question | Marks | CO |
|------|-------------------------------------------------------------------------------------------------------------------------------------------|-------|----|
| a. | Define dynamic memory allocation. Differentiate between malloc () and calloc () with proper example. | 10 | 5 |
| b. | Explain different file opening modes. Write a program to read content of any file and display the number of lines and words in that file. | 10 | 5 |