PAPER ID-411592

**Roll No:** 

**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:<br>void main()<br>{<br>int  x=3 , y = 4 , a=6 , z=7,result ;<br>   result = (x>y) +  ++a \|\| !c ;<br>printf("%d", result);<br>} | 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:<br> void main()<br>{<br>  int a ,*p;<br> //value of a is input by the user and assumed it is equal to 7.<br>  p = &a;<br>scanf("%d", p);<br>printf("%d",a);<br>} | 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<br>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:<br>     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 |