PAPER ID-411591

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.**   **2x10 = 20**

Qno.	Question	Marks	CO
a.	Draw the Memory hierarchy representation.	2	1
b.	Why is RAM called a Volatile memory?	2	1

c.	Write down the output of following code.
	#include <stdio.h>
	int main()
	{ int a=23;
	   ;
	   ;printf("%d",a);
	   ;
	   return 0;
	}
		2	2

d.	Write down the output of following code.
	#include<stdio.h>
	int main()
	{ int a = 5;
	     a = 1, 2, 3;
	     printf("%d", a);
	     return 0;
	}
		2	2

e.	Write the use of continue statement.	2	3
f.	What is the difference between entry control loop and exit control loop?	2	3
g.	How the size of the structure defined in c programming?	2	4
h.	Why is sorting process required?	2	4
i.	Write the advantages of using macro in C programming.	2	5
j.	Draw the basic structure of Linked List and explain its node.	2	5

SECTION B

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

Qno.	Question	Marks	CO
a.	Differentiate between Compiler and Interpreter. Draw the flow chart of swapping of two numbers.	10	1
b.	What do you mean by Operands? Discuss the operator precedence and associatively of all the operators.	10	2
c.	Write the advantage of recursive function? Write a program to print the Fibonacci series up to n number with recursive function.	10	3
d.	Write short note on array. Write the program for matrix multiplication of two matrix elements.	10	4
e.	Explain the concept of pointer in self-referential structure with proper example.	10	5

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SECTION C

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

Qno.	Question	Marks	CO
a.	Differentiate between High level and Low-Level Programming. Draw and explain the diagram of Digital computer.	10	1
b.	Explain the different kind of storage classes used in C programming with proper syntax.	10	1

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

Qno.	Question	Marks	CO
a.	Write the use of Break statement in switch case. Write a program to find out the greatest number out of three numbers.	10	2
b.	Explain different type of operators in C programming. Which concept makes the difference between operators when precedence is same?	10	2

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

Qno.	Question	Marks	CO
a.	Write a program to print the pattern 1 2 3 4 5 6 7 8 9 10	10	3
b.	Write a Program to find the entered number is Armstrong number or not.	10	3

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

Qno.	Question	Marks	CO
a.	Write a program two find out the odd place and even place numbers from the array elements and print the sum of these numbers respectively.	10	4
b.	Write the program for bubble sorting an explain it with example list 5, 7, 2, 1, 3, 6.	10	4

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

Qno.	Question	Marks	CO
a.	Write the importance of free () function in Dynamic memory allocation. Explain dynamic memory allocation with the functions use in it.	10	5
b.	Difference between read and write mode in file handling. Write a program to copy the content from file to another file and count the characters.	10	5

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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