Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–I & II(NEW) EXAMINATION – WINTER 2022

Subject Code:3110003 Date:07-03-2023

Subject Name:Programming for Problem Solving

Time:10:30 AM TO 01:00 PM Total Marks:70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			Marks
Q.1	**(a)**	List out and briefly explain basic building blocks of Computer system.	**03**
	(b)	Describe various symbols used for preparing flow chart.	**04**
	(c)	List and explain different data types available in C.	**07**
Q.2	**(a)**	Demonstrate the working of bitwise shift and *sizeof* operator with an example.	**03**
	(b)	Differentiate *while* and *do..while* loop.	**04**
	(c)	Write a C program to check whether the entered character is alphabet, digit, space or any special character.	**07**
		OR	
	(c)	Write a C program to print following pattern: 1 2 2 3 3 3 4 4 4 4	**07**

Q.3	**(a)**	Find out error(s), if any in the following code and correct it:
		`int main() {`
		`  if(10%2==0){`
		`  break;`
		`  }`
		`}`
			03

	(b)	Examine following code and give output of it.
		`void main(){`
		`  int a=0;`
		`  while (a<10) {`
		`  a++;`
		`  if (a%3==1) {`
		`  continue;`
		`  }`
		`  printf (" %d", a);`
		`  }}`
			04

	(c)	Write a C program to find factorial of a given number.	**07**
		OR	

Q.3	**(a)**	Find out error(s), if any in the following code and correct it:
		`int main() {`
		`  printf(“%f %d”, 7.0%5.0, 5 || -2);`
		`}`
			03

	(b)	Examine following code and give output of it.
		`void main(){`
		`  int i=1;`
			04

```
    for (i=10; i>=1 ; --i) {
        printf (" %d", i);
        i--;
    }
}
```

	(c)	Write a C program to make sum of digits of a given number. (if input is 145, output should be 10)	**07**
Q.4	**(a)**	Difference between *call by value* and *call by reference*.	**03**
	(b)	Explain the concept of recursion with an example.	**04**
	(c)	Write a C program to make sum of array elements.	**07**
		OR	
Q.4	**(a)**	Briefly explain storage class *auto* and *extern*.	**03**
	(b)	Explain *switch* statement with an example.	**04**
	(c)	Write a C program to sort an array in ascending order.	**07**
Q.5	**(a)**	Give the significance of *getc(), getw(), fscanf().*	**03**
	(b)	Compare structure and union.	**04**
	(c)	Describe categories of User defined function.	**07**
		OR	
Q.5	**(a)**	List down and briefly explain methods for dynamic memory allocation.	**03**
	(b)	Write a C program to copy content of one file to other with the help of file handling functions.	**04**
	(c)	Explain any four string handling functions with an example.	**07**