

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-I & II(NEW) EXAMINATION – SUMMER 2023****Subject Code:3110003****Date:03-08-2023****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) Design block diagram of computer and explain functionalities of various components of computer.	03
	(b) Write an algorithm to find maximum number for three given number.	04
	(c) Write a C program to compute Fahrenheit from centigrade ($f=1.8*c+32$).	07
Q.2	(a) Differentiate: Exit controlled Loop and Entry controlled Loop	03
	(b) Explain: <ol style="list-style-type: none"> a) switch-case statement b) continue statement 	04
	(c) Write a C program to find factorial of a number using recursion.	07
OR		
	(c) Write a C program to generate first n number of Fibonacci series using recursion.(0 1 1 2 3 5 8...)	07
Q.3	(a) Explain else... if ladder with an example.	03
	(b) List out all operators and explain any two in details.	04
	(c) Write a function in the C program to return 1 if number is prime otherwise return 0.	07
OR		
Q.3	(a) Explain Type casting in C with example.	03
	(b) Explain the structure of for loop with proper example.	04
	(c) What is function? Differentiate: Call by value and Call by reference.	07
Q.4	(a) Explain following terms: <ol style="list-style-type: none"> a) break statement b) getch() function c) getchar() function 	03
	(b) Write a C program to print following patterns : <pre style="margin-left: 20px;">* ** *** ****</pre>	04
	(c) Write a C program to copy one string to other without using string handling function.	07

OR

- Q.4** (a) List any three header file with its usage. **03**
(b) Write a program to print following patterns : **04**
1
22
333
4444
(c) Define a structure type *struct* personal that would contain person name, date of joining and salary using this structure to read this information of 5 people and print the same on screen. **07**
- Q.5** (a) What is dynamic memory allocation? Show the use of `malloc()` and `calloc()` function with their syntax. **03**
(b) What is structure? How it is different from union? Explain nested structure with example. **04**
(c) Write a C program to check whether a number is prime or not. **07**
- OR**
- Q.5** (a) Explain following string handling functions: I. `strcat()` II. `strcmp()` III. `strlen` **03**
(b) What is Pointer in C and how it initializes? State its advantages. **04**
(c) Write a C program to check whether a three digits number is palindrome or not. **07**
