

Enrollment No./Seat No.:

## GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Engineering - SEMESTER - 1/2 EXAMINATION - WINTER 2025

Subject Code: BE01000121/BE01R00121

Date: 31-12-2025

Subject Name: Programming for Problem Solving

Time: 02:30 PM TO 05:00 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
<b>Q.1 (a)</b> Define followings: Compilers, Interpreters, Assemblers	03
<b>(b)</b> Explain computer block diagram with functionalities of different components.	04
<b>(c)</b> List different symbols used in flowchart with their functionality. Draw flowchart to find that given number is odd or even.	07
<b>Q.2 (a)</b> Write rules to declare variables in C language.	03
<b>(b)</b> List and explain different primitive data types in C language.	04
<b>(c)</b> List and explain different operators in C language.	07
<b>OR</b>	
<b>(c)</b> Write C language program to find minimum and maximum from three numbers.	07
<b>Q.3 (a)</b> Explain switch case statement.	03
<b>(b)</b> Differentiate while loop and do-while loop.	04
<b>(c)</b> Write C language program to make sum of digits of given number. (hint: if number is 482 then sum is $4+8+2=14$ ).	07
<b>OR</b>	
<b>(a)</b> Explain if-else statement.	03
<b>(b)</b> Differentiate break and continue statement with example.	04
<b>(c)</b> Write C language program to generate following triangle:	07
9	
8 7	
6 5 4	
3 2 1 0	
<b>Q.4 (a)</b> What is an array? Brief about 2-D array.	03
<b>(b)</b> Explain functions: strcpy(), strcat(), scanf(), main()	04

- (c) Create structure named as Book\_details with variables book\_id, title, author, and price. Create array of structures with it. From the array of structure show the book details having maximum price. **07**

**OR**

- (a) What is union? How it is different from structure. **03**
- (b) Discuss the parameter pass by value and parameter pass by reference with example. **04**
- (c) Write C language program to check whether the given string is palindrome or not without using string functions. **07**

- Q.5** (a) Explain debugging techniques. **03**
- (b) Briefly explain fopen() function with different operating modes. **04**
- (c) Write C language program to find factorial of a number using recursion. **07**

**OR**

- (a) Explain working of pointer with an example. **03**
- (b) Briefly explain memory allocation functions malloc() and calloc() with an example. **04**
- (c) Write C language program to generate Fibonacci series using recursion. **07**

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