

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 |
|--|--------------|
| Q.1 (a) Define followings: Compilers, Interpreters, Assemblers | 03 |
| (b) Explain computer block diagram with functionalities of different components. | 04 |
| (c) List different symbols used in flowchart with their functionality. Draw flowchart to find that given number is odd or even. | 07 |
| Q.2 (a) Write rules to declare variables in C language. | 03 |
| (b) List and explain different primitive data types in C language. | 04 |
| (c) List and explain different operators in C language. | 07 |

OR

| | |
|--|-----------|
| (c) Write C language program to find minimum and maximum from three numbers. | 07 |
| Q.3 (a) Explain switch case statement. | 03 |
| (b) Differentiate while loop and do-while loop. | 04 |
| (c) 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 |

OR

| | |
|---|-----------|
| (a) Explain if-else statement. | 03 |
| (b) Differentiate break and continue statement with example. | 04 |
| (c) Write C language program to generate following triangle: | 07 |
| 9 | |
| 8 7 | |
| 6 5 4 | |
| 3 2 1 0 | |

| | |
|---|-----------|
| Q.4 (a) What is an array? Brief about 2-D array. | 03 |
| (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
