

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE- SEMESTER-I&II EXAMINATION – SUMMER 2025****Subject Code:3110003****Date:27-06-2025****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) | Write an algorithm to find factorial of given number by user input.   | <b>03</b> |
| (b) | Draw a flowchart to check whether the entered number is prime or not. | <b>04</b> |
| (c) | List and explain different data types available in C.                 | <b>07</b> |

- Q.2**
- |     |  |           |
|-----|--|-----------|
| (a) | Demonstrate the working of ternary operator and sizeof operator with an example.                                 | <b>03</b> |
| (b) | Differentiate between while and do..while loop.  | <b>04</b> |
| (c) | Write a C program to print following pattern:<br>For e.g. input = 5<br>1<br>2 2<br>3 3 3<br>4 4 4 4<br>5 5 5 5 5 | <b>07</b> |

**OR**

- |     |  |           |
|-----|--|-----------|
| (c) | Write a C program to print following pattern:<br>For e.g. input = 5<br>*<br>**<br>***<br>****<br>***** | <b>07</b> |
|-----|--|-----------|

- Q.3**
- |     |  |           |
|-----|--|-----------|
| (a) | Explain type casting with example  | <b>03</b> |
| (b) | Differentiate between break and continue.  | <b>04</b> |
| (c) | Write a program to find out the maximum number from integer array of 5 elements. | <b>07</b> |

**OR**

- Q.3**
- |     |   |           |
|-----|---|-----------|
| (a) | Explain else...if ladder with example.  | <b>03</b> |
| (b) | Explain getch(), putch(), gets(), puts() .  | <b>04</b> |
| (c) | What is function? Differentiate between call by value and call by reference with example. | <b>07</b> |

- Q.4**
- |     |   |           |
|-----|---|-----------|
| (a) | Explain nested structure with example   | <b>03</b> |
| (b) | Explain following string handling functions:<br>1). strcat()<br>2). strlen()  | <b>04</b> |
| (c) | Write a C program to check whether given integer number is palindrome or not? | <b>07</b> |

**OR**

- Q.4**
- |     |  |           |
|-----|--|-----------|
| (a) | State the use of Union in 'C' with example   | <b>03</b> |
| (b) | Briefly explain memory management functions. | <b>04</b> |

- (c) Write a C program to count total number of vowel in given string. ( for example input string ="hello" , output=2) **07**

- Q.5** (a) Demonstrate the use of void \* with example **03**  
(b) Demonstrate the use of fopen( ) and fprintf( ) function of file handling **04**  
(c) Write a c program to count total number of characters, words and line for any text file using file handling function **07**

**OR**

- Q.5** (a) Demonstrate the pointer arithmetic with example. **03**  
(b) show the use of fclose( ) and fscanf( ) function of file handling **04**  
(c) Write a c program to copy content of one text file to another text file **07**

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