GUJARAT TECHNOLOGICAL UNIVERSITY
BE- SEMESTER–I & II EXAMINATION – WINTER 2025

Subject Code:3110003 **Date:08-01-2026**

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)**	Write an algorithm to check whether the entered number is Even or Odd.	**03**
	(b)	Define following terms: 1) Application Software 2) System Software 3) Algorithm 4) Flowchart	**04**
	(c)	Explain different type of operators used in c language with their precedence and associativity.	**07**
Q.2	**(a)**	Discuss the need of break and continue statements with 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:	**07**

Input : 4

Output:

```
    1
   2 2
  3 3 3
 4 4 4 4
```

Q.3	**(a)**	Explain switch statement with an example.	**03**
	(b)	Write a C program to find the largest number amongst three integers entered	**04**
	(c)	Write a C program to find factorial of a given number	**07**

OR

Q.3	**(a)**	Explain nested if-else statement with suitable example.	**03**
	(b)	Find out error(s), if any in the following code and correct it:	**04**

```
int main()
{ if(25%2==0)
{ break; }
}
```

	(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)** List the types of Array   **03**
     (b) Summarize the methods for initialization of One-Dimensional array.   **04**
     (c) Write a C program to sort an array in ascending order.   **07**

OR

Q.4 **(a)** Demonstrate declaration and initialization of two dimensional array with suitable example.   **03**
     (b) Demonstrate the use of recursion with an example   **04**
     (c) Write a program in c for multiply two matrices A and B of dimensions M x N and N x O respectively and store the result in third matrix C.   **07**

Q.5 **(a)** Define dynamic memory allocation. Explain malloc() and calloc() with example.   **03**
     (b) What is pointer? Explain how pointers are declared and initialized. .   **04**
     (c) Write a c program to copy content of one file into another file.   **07**

OR

Q.5 **(a)** Differentiate call by value and call by reference.   **03**
     (b) Discuss Nested structure with example.   **04**
     (c) Write a c program to read a file and count total no of lines, total no. of words and total number of characters.   **07**

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