Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–1/2 EXAMINATION – WINTER 2021

Subject Code:3110003 Date:24/03/2022

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)**	Define following terms: 1) Application Software 2) System Software 3) Algorithm 4) Flowchart.	**04**
	(b)	Draw the flow chart to find the largest of the given three numbers – A ,B and C	**03**
	(c)	Explain different type of operators used in c language with their precedence and associativity.	**07**
Q.2	**(a)**	Discuss use of break and continue statement in C with example.	**03**
	(b)	Compare and contrast while and do while loop with example.	**04**
	(c)	Write a C program to print following pattern. 1 2 2 3 3 3	**07**
		OR	
	(c)	Write a C program to print following pattern. 1 2 3 4 5 6	**07**
Q.3	**(a)**	Write a program to check whether entered character is vowel or not?	**03**
	(b)	Explain getch(), getchar(), gets(), puts() .	**04**
	(c)	Develop a menu-based program to perform addition, multiplication, subtraction and division using user-defined function.	**07**
		OR	
Q.3	**(a)**	Write an algorithm for finding odd and even number from given two numbers.	**03**
	(b)	Write a program to check whether entered number is prime or not with the help of user-defined function check-prime().	**04**
	(c)	Write a program to find out the largest of an array.	**07**
Q.4	**(a)**	What is structure? Explain with example how to declare a structure and how to initialize it.	**03**
	(b)	Explain following string manipulation function. strcat( ), strcpy( ) ,strcmp( ) and strlen( )	**04**
	(c)	Write a program in c for multiply two matrices A and B of dimensions pXq and qXr respectively and store the result in third matrix C.	**07**
		OR	

Q.4	**(a)**	Demonstrate declaration and initialization of two dimensional array with suitable example.	**03**
	(b)	Explain nested if else ladder with suitable example.	**04**
	(c)	Write a program in c using structure to enter rollno, marks of the three subject for 3 student and find total obtained by each student	**07**
Q.5	**(a)**	What do you mean by recursive function? What care must be taken while writing a program with recursive function?	**03**
	(b)	Explain fopen() and its mode with example.	**04**
	(c)	Describe different categories of user-defined functions.	**07**

OR

Q.5	**(a)**	What is pointer? Explain how pointers are declared and initialized. .	**03**
	(b)	Compare malloc() and calloc() functions for dynamic memory allocation.	**04**
	(c)	Develope a program in C to check the entered number is prime or not by creating a user-defined function named check_prime().	**07**

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