Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–I &II (NEW) EXAMINATION – SUMMER-2019

Subject Code: 3110003   Date: 10/06/2019

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.

			Marks
Q.1	(a)	Write flowchart or algorithm to find area of a triangle.	3
	(b)	Write a program to reverse a given number.	4
	(c)	Explain various looping control structures with suitable example.	7
Q.2	(a)	What are header files? Name at least 3 with its usage.	3
	(b)	Write a program to find $1+1/2+1/3+1/4+....+1/n$.	4
	(c)	What is a string? Explain at least 4 built-in string functions with example.	7

OR

			Marks
	(c)	What is an array? Explain one dimensional and two dimensional array declarations and initialization with suitable example.	7
Q.3	(a)	What is formatted output? Using printf() statement explain it.	3
	(b)	Write a program to check whether entered character is vowel or not?	4
	(c)	Write a program to print all Armstrong numbers in a given range. Armstrong number is equal to sum of cubes of its individual digits. For example $153 = 1^3 + 5^3 + 3^3$. So, 153 is Armstrong number.	7

OR

			Marks
Q.3	(a)	Why it is necessary to give the size of an array in array declaration?	3
	(b)	Explain break and continue with suitable example.	4
	(c)	Write a program to display transpose of given 3*3 matrix.	7
Q.4	(a)	What is pointer? Which arithmetic operations are not valid on pointers?	3
	(b)	Explain array of pointers with suitable example.	4
	(c)	Write a program to calculate nCr using user defined function. $nCr = n! / (r! * (n-r)!)$	7

OR

			Marks
Q.4	(a)	What is pointer? Which arithmetic operations are valid on pointers?	3
	(b)	What is pointer to pointer? Write suitable example to demonstrate the concept.	4
	(c)	What is recursive function? Explain with suitable example.	7
Q.5	(a)	What care must be taken while writing a program with recursive function?	3
	(b)	Explain how structure variable is initialized with suitable example.	4
	(c)	What are command line arguments? Explain with suitable example.	7

OR

			Marks
Q.5	(a)	In user defined function, what is actual argument and formal argument?	3
	(b)	Explain with suitable example structure variable and pointer to structure variable.	4
	(c)	What is dynamic memory allocation? Explain important functions associated with it.	7

****