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	
	(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	
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	
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	
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**

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