CHAROTAR UNIVERSITY OF SCIENCE AND TECHNOLOGY
(Faculty of Technology and Engineering)
Chandubhai S. Patel Institute of Technology
U & P U. Patel Department of Computer Engineering
INDEX

Student ID:			2024-25	
SEMESTER:	5th			
Course Code and Name:	CE390- Competitive Programming Essentials			

Practical No.	Date	Practical Aim	Grade	Sign
1		**Programming Techniques**		
1.1		Calculate the number of trailing zeros in the factorial n!		
1.2		Your task is to count for k=1, 2…, n the number of ways two knights can be placed on a k×k chessboard so that they do not attack each other.		
1.3		Pattern Problems		
2		**Bit manipulation**		
2.1		Find the missing number without using any extra space.		
2.2		Identify the two numbers with odd occurrences		
3		**Recursion**		
3.1		Given an array of size N, print all the subsets of the array.		
3.2		Generating permutations using backtracking		
4		**Time efficiency and situational awareness**		
4.1		Maximum subarray sum problem		
5		**Linear data structures (Array, linkedlist)**		
5.1		Determine if a 9 x 9 Sudoku board is valid		
5.2		Maximum Twin Sum of a Linked List		

CHAROTAR UNIVERSITY OF SCIENCE AND TECHNOLOGY				
(Faculty of Technology and Engineering)				
Chandubhai S. Patel Institute of Technology				
U & P U. Patel Department of Computer Engineering				
INDEX				
Student ID:			2024-25	
SEMESTER:	5th			
Course Code and Name:	CE390- Competitive Programming Essentials			

Practical No.	Date	Practical Aim	Grade	Sign
6		**Linear data structures (stack, queue)**		
6.1		Find out the state of the asteroids after all collisions		
6.2		Generate Binary Numbers from 1 to n using queue and its operations		
7		**Non-Linear data structures (BT, Map, Graph(basic))**		
7.1		Binary Tree Right View		
7.2		Check if the number of occurrences of each value in the array is unique or false otherwise		
7.3		Town Judge		
8		**Searching and sorting**		
8.1		Ferris wheel		
8.2		Sort Vowels in a String		
9		**Algorithm design**		
9.1		Two pointers		
9.2		Next greater/smaller element		
9.3		Sliding window		
10		**String processing**		

		CHAROTAR UNIVERSITY OF SCIENCE AND TECHNOLOGY		
		(Faculty of Technology and Engineering)		
		Chandubhai S. Patel Institute of Technology		
		U & P U. Patel Department of Computer Engineering		
		INDEX		
Student ID:			2024-25	
SEMESTER:	5th			
Course Code and Name:	CE390- Competitive Programming Essentials			
Practical No.	Date	Practical Aim	Grade	Sign
10.1		Wildcard matching		
10.2		Find Longest Awesome Substring		