

SEM B

CO 10507 Programming for Problem Solving

Section All section (2022-2023 Sem B)

Lab Assignment 03

1.	Write a function to print all perfect numbers in a given interval in C programming.	CO3												
2.	Amicable numbers are found in pairs. A given pair of numbers is Amicable if the sum of the proper divisors (not including itself) of one number is equal to the other number and vice – versa. For example 220 & 284 are amicable numbers First we find the proper divisors of 220: 220:1, 2, 4, 5, 10, 11, 20, 22, 44, 55, 110 1+ 2 + 4 + 5 + 10 + 11 + 20 + 22 + 44 + 55 + 110 = 284 Now, 284: 1, 2, 4, 71, 142 1 + 2 + 4 + 71 + 142 = 220 Write a function to check that the input pair of numbers is amicable.													
3.	<p>Russian Peasant method multiplies any two positive numbers using division by, multiplication by 2 and addition. The first number is divided by 2 and the second is multiplied by 2 repeatedly until the first number reduces to 1. Write a recursive function to multiply two numbers using Russian Peasant.</p> <p>E.g 19*25=475</p> <p>Russian Peasant method</p> <table><tr><td>19</td><td>25</td></tr><tr><td>19/2=9</td><td>25*2=50</td></tr><tr><td>9/2=4</td><td>50*2=100</td></tr><tr><td>4/2=2</td><td>100*2=200</td></tr><tr><td>2/2=1</td><td>200*2=400</td></tr><tr><td></td><td>25+50+400=475</td></tr></table>	19	25	19/2=9	25*2=50	9/2=4	50*2=100	4/2=2	100*2=200	2/2=1	200*2=400		25+50+400=475	CO3
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19/2=9	25*2=50													
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4/2=2	100*2=200													
2/2=1	200*2=400													
	25+50+400=475													

4.	<p>(i) Write a program in C to remove characters from a string except alphabets.</p> <p>Test Data : Input the string : google.com</p> <p><i>Expected Output :</i> After removing the Output String : googlecom</p> <p>(ii) Write a program to count the total number of alphabets, digits and special characters in a string.</p> <p>Test Data : Input the string : Welcome to google.com</p>	CO3
5	<p>(i) Write a C program to find the longest palindrome substring from a given string. Return the substring.</p> <p>Sample Data: Original string: abcdcsdfabbccb Longest Palindrome Substring from the said string? bccb</p> <p>(ii) Write a program to calculate the length of the longest common subsequence of two given strings. The string consist of alphabetical characters.</p> <p>Sample Data: ("abcdkiou", "cabsdf") -> 3 ("pqrjad", "qr") -> 2</p>	CO3