National University of Computer and Emerging Sciences

Laboratory Manual

for

Programming Fundamentals Lab

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Section	BCS-1K
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Objectives:

In this lab, students will practice:
1. Problem identification

2. Creating smart logic
3. Problem solving

Questions:

1. Write a pseudo code that calculates the square of a given number.
2. Write a pseudo code that takes number "n" from user and then print numbers from 1 to n.
3. Write a pseudo code that takes two values and swap them.
4. Ask a user to enter a number. If the number is between 0 and 10, write the word blue. If the number is between 10 and 20, write the word red. if the number is between 20 and 30, write the word green. If it is any other number, write that it is not a correct color option.
5. Calculate the average of the five numbers.
6. Find area of circle using radius.
7. Write a program that inputs "n" from user and print "n" odd numbers.
8. Write a program that shows a given year is a leap year or not.
9. Write pseudo code to print all multiples of 5 between 1 and 100.
10. Calculate the sum of all even numbers between 1 and n:
11. Check if a number is prime or not.
12. Print a pattern of asterisks in the shape of a right triangle.
13. Count the number of vowels in a given string.
14. Check if a given string is a palindrome
15. Calculate the sum of the digits of a given number:
16. Check if a given string is a valid email address:
17. Find the number of prime numbers in a given range [a, b]:
18. Calculate the cost of a road trip with expenses like fuel, food, and lodging.
19. Calculate the monthly salary with overtime pay if working hours are greater than 160.
20. Input:
21. - List of items with prices and quantities
22. Write output for this pseudo code

```
totalCost = 0
For each item in the list
    itemCost = item price * item quantity
    totalCost = totalCost + itemCost

Output: totalCost
```