**LAB CYCLE 1**

**Programs:**

A) Write a C program to swap the two numbers.

B) Write a C program to find the roots of a quadratic equation

**Instructions:**

1. Write code for the programs given.
2. Note down the input and output under *Testing*

**A) Write a C program to swap the two numbers (2M)**

**Problem Statement:**

Write a C program to swap two numbers

**Analysis:**

The input is two integers, a and b

The output is interchanged values of a and b

**Design/Algorithm:**

1. Read two integers: a and b

2. Write a and b

3. Set t=a, a=b, b=t

4. Write a and b

**Implementation:**

//Swapping two numbers

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**Testing:**

Enter two numbers, a and b: 10 20

Values of a and b: 10 and 20

Values of a and b after swapping: 20 and 10

**B) Write a C program to find the roots of a quadratic equation (5M)**

**Problem Statement:**

Write a C program to find the roots of a quadratic equation

**Analysis:**

The quadratic equation will be of the form, a\*x\*x + b\*x + c = 0

Input: Values of a, b, c

Output: Two roots, either real or imaginary

**Design/Algorithm:**

1. Read the values of a,b,c

2. compute d=b\*b-4\*a\*c

3. if(d<0)

root1=-b/(2\*a)+(sqrt(-d)/(2\*a))j

root2=-b/(2\*a)-sqrt(-d)/(2\*a)j

write(root1,root2)

4. else

root1 = (-b + sqrt(d))/(2\*a);

root2 = (-b - sqrt(d))/(2\*a);

write(root1,root2)

**Implementation:**

//Roots of a quadratic equation

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**Testing:**

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**Additional Programs**

(C) Write a C program to read your name, age, height, and gender and display the memory size of each item (3M)

(Hint:

Declaration: name-string; age-integer; height-float; gender-character;

Use sizeof operator for finding memory size of each item)

(D) Write a program to find the bigger of two numbers using conditional operator (2M)

(E) Write a program to find the maximum of three numbers using conditional operator (3M)

(F) Practice all the bitwise operators (3M)

(G) Ramesh’s basic salary is input through the keyboard. His dearness allowance is 40% of basic salary, and house rent allowance is 20% of basic salary. Write a program to calculate his gross salary. (4M)

(H) Write a program for the following case which uses the US currency (3M)

(Hint:

1 Penny=1 Cent= $0.01

1 Nickel=5 Cents=$0.05

1 Dime=10 Cents=$0.1

1 Quarter=25 Cents=$0.25)

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