Assignment-I

Write your name, roll number and assignment number in the header of the program file as comments. You may give your program file name as <asgn><no_><RollNo>.c. For example, a student with roll number 21CS1001 should name the program file for assignment number 1(a), as asgn1a_21CS1001.c. Submit all the programs in the Moodle System 15 minutes before the end of the laboratory session. Provide also output files containing results given the set of inputs given here. Please follow the instruction for generating result files provided at the end.

(a) Compute the perimeter of a triangle given its coordinates of its three vertices (to be read).

Input data set (coordinates of three vertices of a triangle)

   (i)   (10,5), (-5,3), (2,2)
   (ii)   (1,2), (5,5), (7,6.5)
   (iii)   (0,0,), (5,0), (2.5, 5)

(b) Compute the compound interest of a principal amount p (to be read) at an interest rate of 5.5% for n (to be read) years.

Input data set:

   (i)   p=10000, n=4
   (ii)   p=4563, n=3

(c) Consider a resistive circuit (shown in a Figure overleaf) where a resistance $R1$ is connected with two resistances $R2$ and $R3$ connected in parallel. A D.C. source E is applied across this load. Compute the power dissipated in each resistance, and the total power consumed by the circuit. Assume the values of resistance given in ohm, power source in Volt, and power should be expressed in Watt. Write a program which will read the values of resistances and power source and print the results (as asked) of the computation.

(i)   R1=5 KΩ, R2=10 KΩ, R3=20 KΩ, E=50 V
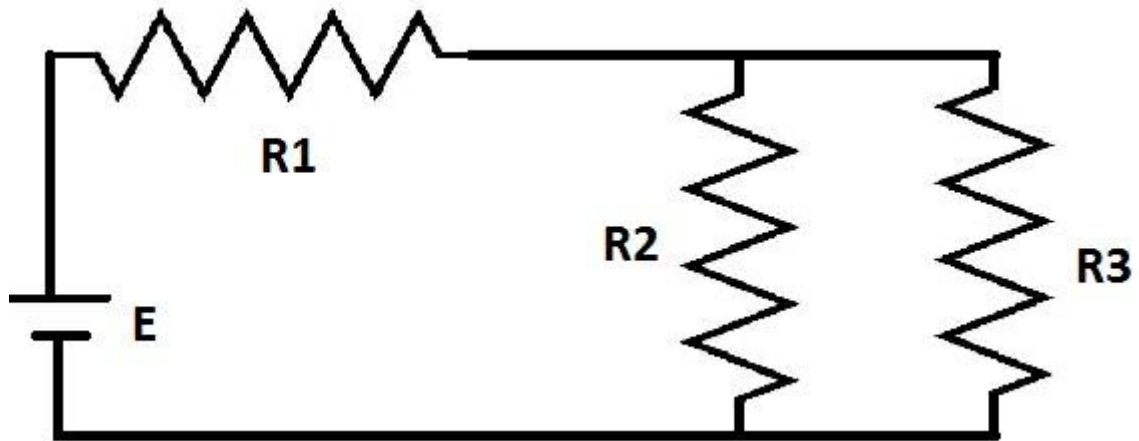
(ii)   R1=15 KΩ, R2=7 KΩ, R3=8 KΩ, E=12 V

For generation of output files

All the results for each assignment should be submitted together in a separate file (named result.txt). Provide the result in a separate output file (named, result_<assgn><no>.txt). Use standard output redirection feature to generate the output file.

Hints. Suppose you would like to redirect your output to a file 'result.txt'. If you run the program with the following command

./a.out >result.txt

Output of your program (generated by printf(.) function) will be written in file result.txt. You need to provide input from your input, by remembering the sequence of inputs to be given.

If you execute the program multiple times, you may concatenate the outputs in a single file by using the following redirection command:

./a.out >>result.txt

Input redirection (optional):

You may also store your input (the ordering as per requirement of the program should be preserved) in an input file in.txt, and execute the program as follows:

./a.out <in.txt >result.txt