Department of Computer Science and Engineering. NITK, Surathkal

CS203 – Design of Digital Systems Lab

Assignment I

Complete Module I of the CS203 Lab. Module I is reproduced below.

Instructions:

1. Assignment is to be completed in teams of 2. One submission per team.
2. Submission: Create a directory with the registration numbers of your team. Eg. 18CO201-202. Inside,
    a. place a README with your identification info (name, reg. No. etc., ...).
    b. Create one directory per question. Put your code, screenshots, etc. inside the directory.
3. Pack the parent directory and send to cs201.nitk@gmail.com. Deadline: August 10, 9AM.

Module I

Write code for the following in your favourite programming language.

1. Base Conversion. Inputs: a radix-x, 4 digit signed number, desired radix - y . Output: a radix-y, equivalent of the input.
2. Radix identification. Find x and y in Number1_x = Number2_y. 2 Inputs: a radix-x and a radix-y signed number. Outputs: x and y.
3. Arithmetic Operations. On radix-x inputs, perform addition, subtraction, multiplication and division. 4 Inputs: two radix-x operands, x (the radix), Operation (one of +,-,*,/). Output: Output of the Arithmetic Operation.
4. Complements: Perform r's and r-1's complements. Input: a radix-x signed number. 2 Outputs: r's and r-1's complements of the input.
5. Write a program that empirically proves the self-complementing property a weighted number.

Download and use Logisim (https://sourceforge.net/projects/circuit/). This'll prepare you for future assignments.