CSE232_2022_HW1

1) An autonomous car has a detector that measures the distances to the front car as a 4-bit binary number. 000 means very close, 111 means long enough. (50 points)

a) Create a circuit that turns on breaks when the distance is below 2, turn on the yellow led if the distance is between 3 to 10 and turn on the green led if the distance is higher that 11.
b) Express the functions on a) by using sum of minterms and product of maxterms.

Hint: You are expected to get three outputs at your circuit.

2) Prove that (a+c)(a+b')(b+c) = (a+b')(b+c) by using Boolean Algebra (30 points)

3) Draw the circuit of F = A'BD+CD using only two input NAND gates (20 Points)

Deadline: 10.03.2022 23:59