SELF-CHECKLIST: Things You Must Cover Before Finals

1. ADC + DAC

a) ADC

- ☐ Know how to calculate the **required number of resistors and comparators** for different number of bits. **No need to memorize the circuit.**
- ☐ Have learned to **calculate voltages at the connecting points of the resistors** (V1, V2, ….)
- ☐ Have practiced the **Dual Slope ADC practice problem** from practice sheet and learnt to draw the output voltage vs time graph.

b) DAC

- ☐ Memorized the **output voltage calculation** formula of **binary weighted resistor DAC**. (**Skip R-2R ladder**)
- ☐ Know **which input is the LSB or MSB**.

2. Signal Generator

- ☐ Can identify inverting and non-inverting Schmitt trigger.
- ☐ Have **memorized the VTH and VTL formula for inverting and non-inverting** Schmitt trigger(S.T). **Skip S.T. with reference voltage**.
- ☐ Have memorized formulas (Period, frequency, Duty cycle) of **Square wave generator and Triangular Wave generator**. Practice **Neaman Exercise 15.8** (Solved in class note) and the **Practice sheet problems**.
- ☐ No theory questions are required for this topic.

3. ECL

- ☐ Can **calculate logical high and low voltage from ECL Inverter circuit.** (Class note page 4).
  - For ECL, it is important to utilize all the information given in the question. Whenever you see input is stated high/low, you should

immediately know whether the output will be high or low (or even place the voltage value if you already know the logical high/low voltage) according to the mentioned logic operation of the output.

- ☐ Have practiced all the **practice problems (1,2 and 3) from week-7 (ECL) practice sheet**.

4. TTL + CMOS

- ☐ Have practiced all the currents calculation of **basic TTL NAND circuit**. Practice problem-1 and 3 from sheet.
- ☐ Have practiced **the CMOS design from given function shown in class and lecture notes**.

And the journey comes to an end. All the best for your final exam!