

# Homework 2

ECE 5/413 – Radio Frequency IC Design

**Problems A:** Do **Chapter 2** textbook (Voinigescu) problems: **1, 4, 5, 12**.  
Grad students also do problems **7** and **17**.

**Problem B1:** Three RF circuit blocks are available with following NF, IIP3 and available power gains. If you have the flexibility of placing them in any order in a cascade, find the order (1-2-3, or 1-3-2 etc.) which provides the:

- a) overall minimum NF for the cascade
- b) overall maximum IIP3 for the cascade

Also, find the best case NF and IIP3 values. Assume that all interfaces are impedance matched.

Component	Gain (dB)	NF (dB)	IIP3 (dBm)
1	10	5	10
2	20	3	-5
3	0	30	40