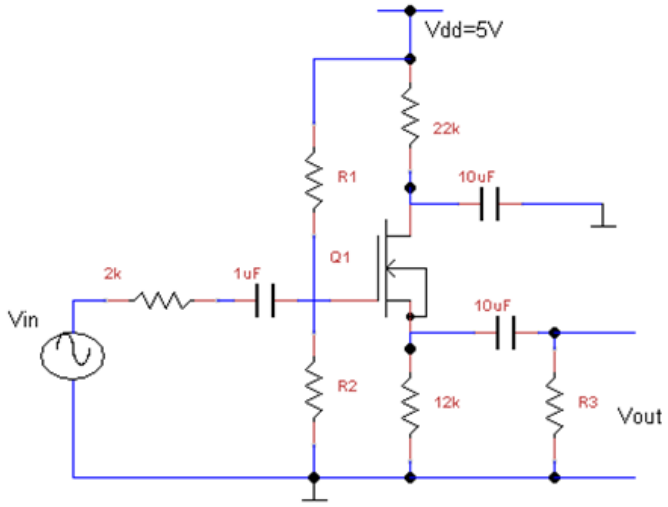
PROBLEM SET-4

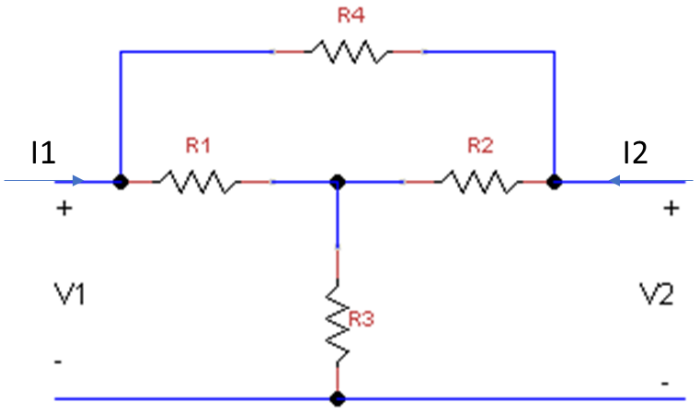
1. For the MOSFET circuit below, input is sinusoidal signal of amplitude 1V and frequency 50Hz Find, the DC operating point, Plot the frequency response and Plot the input, output and transfer characteristics and find out the small signal equivalent. Assume an overdrive voltage of 0.2V.

Use MOSFET 500nm library file provided.



Sl.No.	Resistor Name	Value
1.	R1 (MΩ)	(Last digit of Ist group member ID + 3) multiplied by your tut section no.
2.	R2 (MΩ)	(Last digit of Ist group member ID + 3 /Tut Section no.
3.	R3 (kΩ)	Last three digits of Ist group member year of admission – Tut section number

2. *Problem-1 (DC Analysis and parametric sweep):* For the two port network shown in figure below, obtain the Z-parameters, ABCD (transmission) parameters and h (hybrid) parameters. Cross check your results obtained from simulation against hand calculations. What is the gain if a voltage source has a resistance 5k and the load resistance is 1kohm?



S.No.	Resistor Name	Value
1.	R1(kΩ)	(Last digit of Ist group member ID + 3) multiplied by your tut section no.
2.	R2 (kΩ)	Product of last two digits of Ist group member ID + tut section no.
3.	R3 (kΩ)	(Sum of last three digits of Ist group member ID % 8)*Tut Section no. If R3 obtained is zero then take it as 12kohm
4.	R4 (kΩ)	Last two digits of Ist group member year of admission – Tut section number