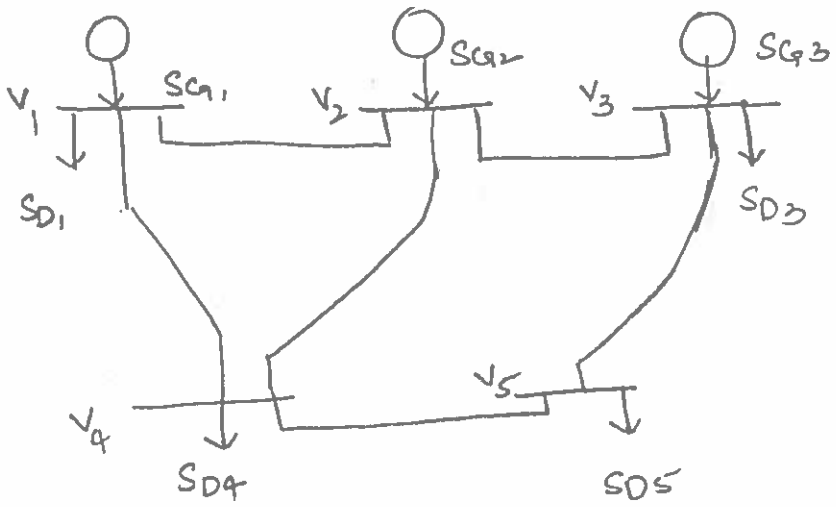
EENG 4310- HOME WORK# 3

POWER FLOW ANALYSIS

1. Find Y_{bus} for figure below assuming that all the transmission links have identical π-equivalent circuits; series element impedance is 0.01+j0.1 and each(of the two) shunt element admittances is j0.8



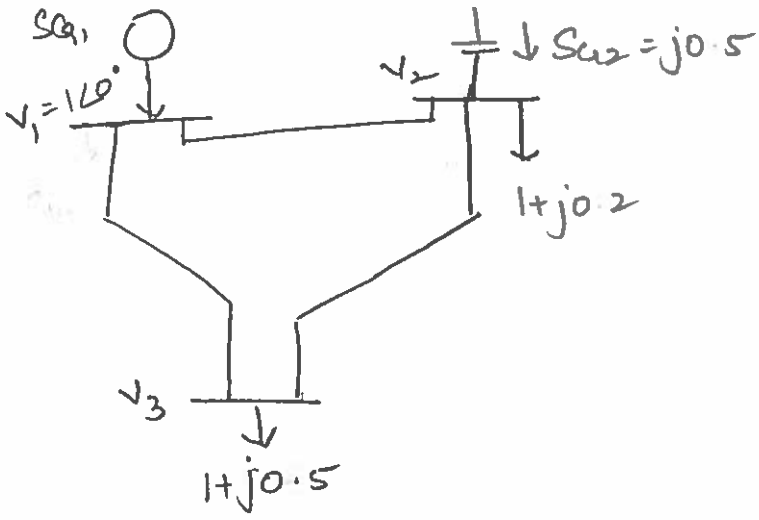
2. We are given the system shown in figbelow and the following equations for bus powers:

$S_1=j19.98|V_1|^2 - jV_1V_2^*-j10V_1V_3^*$

$S_2=- j10V_2V_1^*+ j19.98|V_2|^2 -j10V_2V_3^*$

$S_3= - j10V_3V_1-j10V_3V_2^*+ j19.98|V_3|^2$

Do one step of gauss iteration to find V_2^1 and V_3^1. Start with $V_2^0=V_3^0=1$



3. For the system below, assume $P_{G2}=0.3$, $|V_2|=0.95$, and $S_{D3}=0.5+j0.2$.Starting with $\Theta_2^0=\Theta_3^0=0$ and $|V_3|^0=1.0$, do one N-R iteration and find $|V_3|^1$, Θ_2^1 and Θ_3^1. Evaluate the mismatch vector after this single iteration.