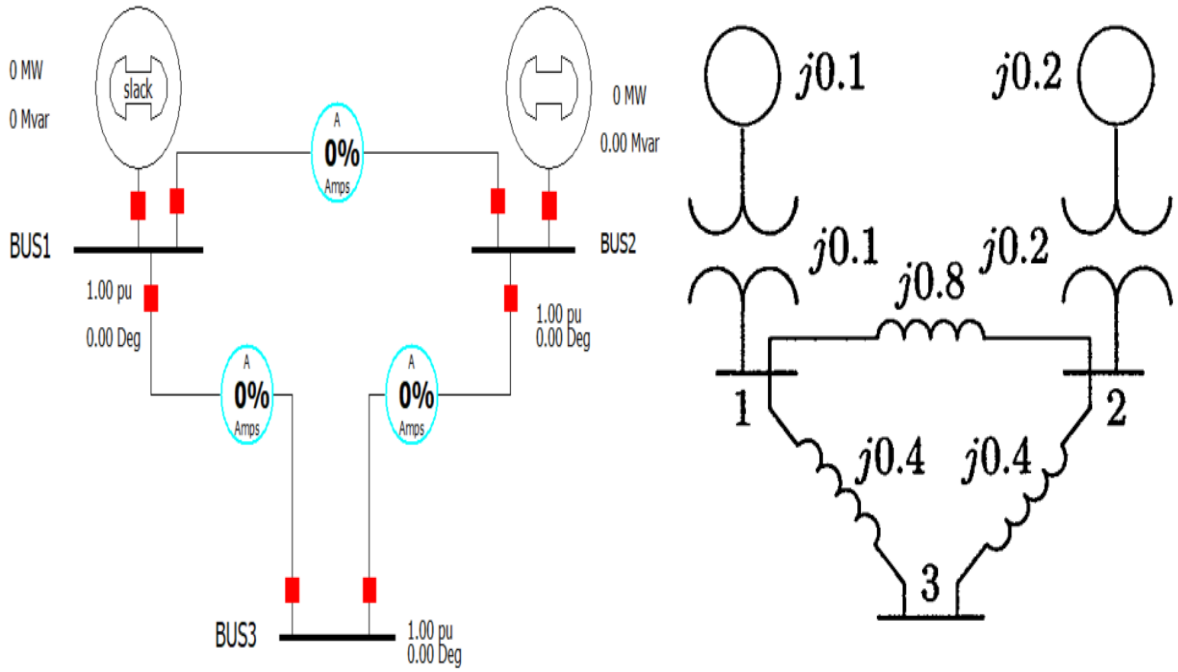
Problem 1:(Fault occurs in BUS 3)



Figuer1: Fault Analysis problem 1

Determine the fault current, the bus voltages, the bus voltages, and the line currents during the fault when a balanced three-phase fault with a fault impedance Zf=0.16 per unit occurs on.

Experimental data table:

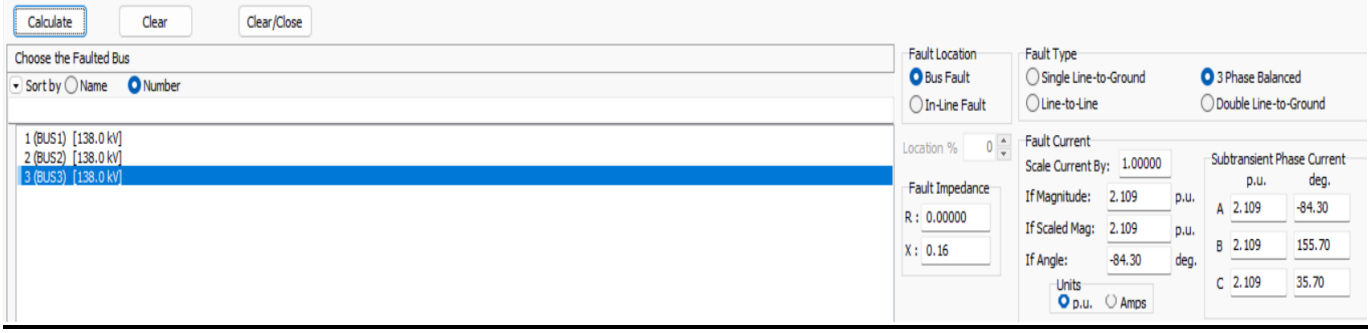
At Z_f= 0.0 ohm

Number	Name	Phase Volt A	Phase Volt B	Phase Volt C	Phase Ang A	Phase Ang B	Phase Ang C
1	BUS1	0.65723	0.65723	0.65723	2.06	-117.94	122.06
2	BUS2	0.62017	0.62017	0.62017	15.49	-104.51	135.49
3	BUS3	0	0	0	90	90	90

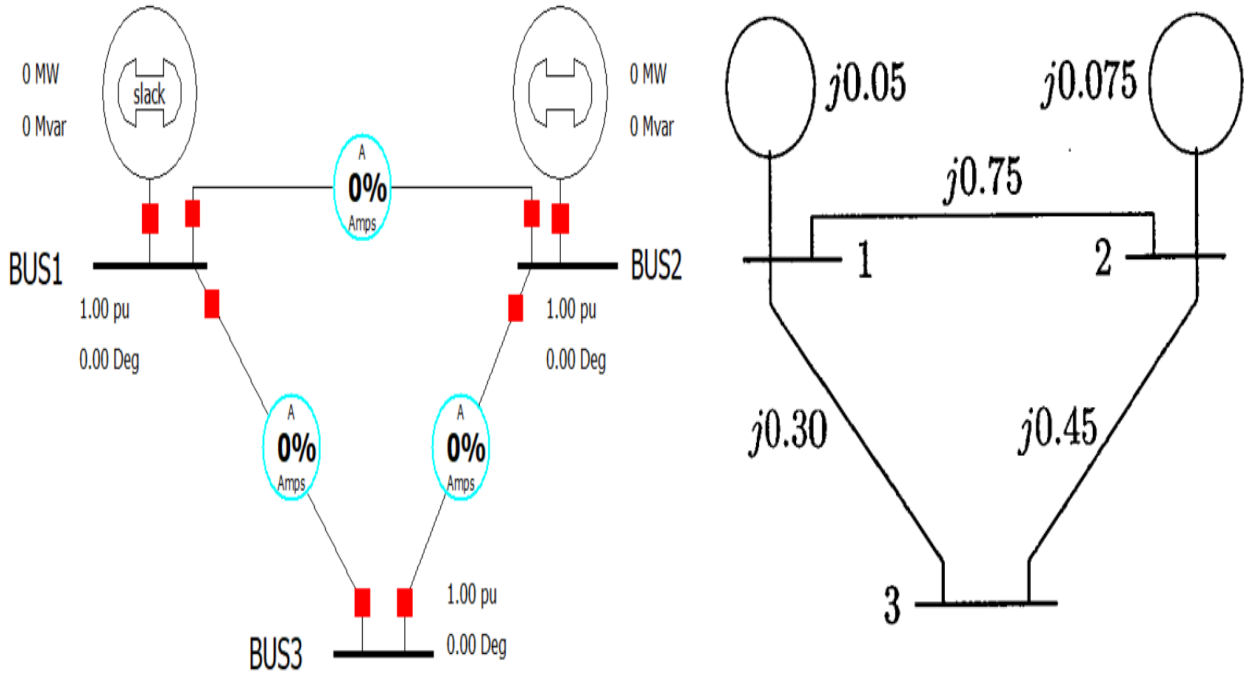
At Z_f=0.16 ohm

Number	Name	Phase Volt A	Phase Volt B	Phase Volt C	Phase Ang A	Phase Ang B	Phase Ang C
1	BUS1	0.77333	0.77333	0.77333	2.02	-117.98	122.02
2	BUS2	0.74856	0.74856	0.74856	9.5	-110.5	129.5
3	BUS3	0.33748	0.33748	0.33748	5.7	-114.3	125.7

Fault Current,Subtransient phase Current(p.u,deg):



Problem 2:(Fault occurs in BUS 3)



Figuer 2: Fault Analysis problem 2

Determine the fault current, the bus voltages, the bus voltages, and the line currents during the fault when a balanced three-phase fault with a fault impedance Zf=0.19 per unit occurs on.

Experimental data table:

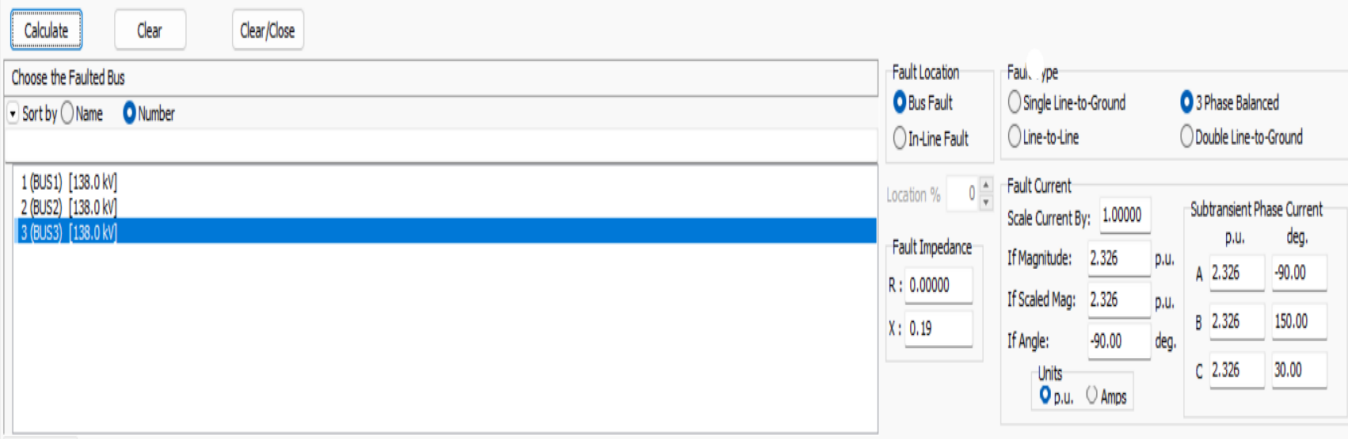
At Z_f = 0.0 ohm

Number	Name	Phase Volt A	Phase Volt B	Phase Volt C	Phase Ang A	Phase Ang B	Phase Ang C
1	BUS1	0.75	0.75	0.75	0	-120	120
2	BUS2	0.75	0.75	0.75	0	-120	120
3	BUS3	0	0	0	90	90	90

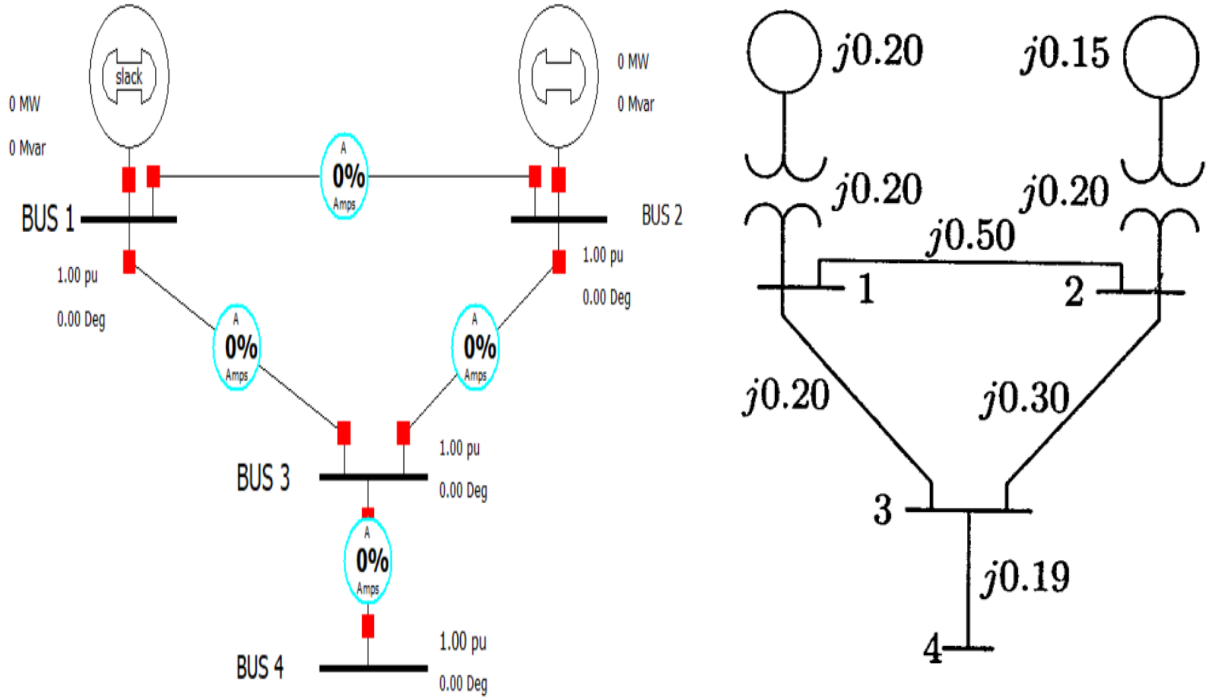
At Z_f = 0.19 ohm

Number	Name	Phase Volt A	Phase Volt B	Phase Volt C	Phase Ang A	Phase Ang B	Phase Ang C
1	BUS1	0.86047	0.86047	0.86047	0	-120	120
2	BUS2	0.86047	0.86047	0.86047	0	-120	120
3	BUS3	0.44186	0.44186	0.44186	0	-120	120

Fault Current, Subtransient phase Current(p.u,deg):



Problem 3:(Fault occurs in BUS 4)



Figuer3: Fault Analysis problem 3

Determine the fault current, the bus voltages, the bus voltages, and the line currents during the fault when a balanced three-phase fault with a fault impedance Zf=0.16 per unit occurs on.

Experimental data table:

At Z_f = 0.0 ohm

Number	Name	Phase Volt A	Phase Volt B	Phase Volt C	Phase Ang A	Phase Ang B	Phase Ang C
1	BUS 1	0.6	0.6	0.6	0	-120	120
2	BUS 2	0.65	0.65	0.65	0	-120	120
3	BUS 3	0.38	0.38	0.38	0	-120	120
4	BUS 4	0	0	0	90	90	90

At Z_f = 0.0225 ohm

Number	Name	Phase Volt A	Phase Volt B	Phase Volt C	Phase Ang A	Phase Ang B	Phase Ang C
1	BUS 1	0.60866	0.60866	0.60866	0	-120	120
2	BUS 2	0.64074	0.64074	0.64074	0	-120	120
3	BUS 3	0.38091	0.38091	0.38091	0	-120	120
4	BUS 4	0	0	0	0	-116.57	116.57

Fault Current,Subtransient phase Current(p.u,deg):