

NAME: _____

Electrical and Computer Engineering

Fall 2023 COMPREHENSIVE/BREADTH EXAM

Problems 2/3/4

TTG Area: Power System

ECGR 4142: Power
System Analysis-II

1. Thevenin equivalent sequence networks looking into the faulted bus of a power system are given with $Z_1 = j0.15$, $Z_2 = j0.15$, $Z_0 = j0.2$, and $E_1 = 1\angle 0^\circ$ per unit. Compute the fault currents and voltages for the following faults occurring at the faulted bus:
 - (a) Balanced three-phase fault
 - (b) Single line-to-ground fault
 - (c) Line-line fault
 - (d) Double line-to-ground fault

2. Which is the worst fault from the viewpoint of the fault current?