Assignment 1

Due on 2020-09-08, 20:00 HKT

Problem 1: A fault is detected in a 1-cycle (T) of the power system and the fault clearance is achieved in 2 cycles. Calculate the fault clearing time for the system.

Problem 2: In an overcurrent protection scheme, the protection threshold is set to be 5 A. What is the fault clearing time for the system?

Problem 3: Calculate the negative sequence component of the given sequence components for a system with a three-phase sequence.

Problem 4: Calculate the phase currents for the given sequence data with the phase sequence.

Problem 5: In a 13.8 kV power system, the angle between two consecutive samples is 1.5 s. The data recorded is shown below. What is the fault detection and decision time for the relay?

Problem 6: The data recorded for a phase current is shown below with a fault inception at 0.8 s. If the fault detection algorithm has a 0.2 s delay, what is the fault clearing time for the system?

Problem 7: For an EHV switch with the highest possible voltage, the quantities must be:

Problem 8: For an EHV switch with the highest possible current, the quantities must be:

Problem 9: For an EHV switch with the highest possible power, the quantities must be: