

ECE471 INDUSTRIAL POWER SYSTEMS

Homework # 6

From chapter 7 of the course text, turn in problems 2, 4, 5 and 6.

- 7.2. Using Figure 7.11, determine the minimum melting and total clearing times for (a) 200 A fuse with a current of 1000 A, and (b) 30 A fuse with a current of 100 A.

- 7.4. Using Figure 7.5, determine the effective let-through symmetrical rms current with a 200 A, 250 V current-limiting fuse if the prospective short-circuit current is 70,000 symmetrical rms amperes.

- 7.5. Refer to Figure 7.13. Both fuses are class RK-5, time delay. Fuse B is rated for 60 A. Determine the smallest standard rating for fuse A that will coordinate with fuse B.

- 7.6. Repeat Problem 5, except fuse A is class T.

Plus the following problem.

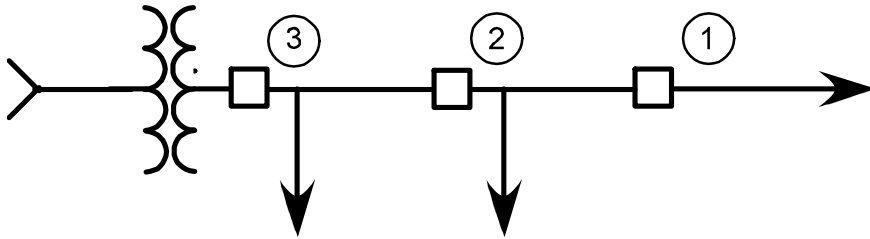
The 13.8 kV feeders shown below are to be protected using CO-7 inverse-time overcurrent relays. The relays are to pick-up for currents in excess of the continuous rating of the line section. Each relay is to allow 0.3 sec co-ordination margin 0.1 sec breaker operating time.

Section 1, continuous rating = 120 A, fault level = 1 kA

Section 2, continuous rating = 360 A, fault level = 2 kA

Section 3, continuous rating = 660 A, fault level = 5 kA

- Select appropriate CT ratios.
- Determine the necessary pick-up taps.
- Determine the appropriate time-dial settings.
- How long will it take to clear a fault on section 3?



Standard
CT Ratios:

50 : 5
100 : 5
150 : 5
200 : 5
250 : 5
300 : 5
400 : 5
450 : 5
500 : 5
600 : 5
800 : 5
900 : 5