Name: _____ ECE 3600 homework Prot Due: Tue, 4/23/24

1. a) What is the cause of most over-voltage issues?

   b) Over-voltage issues are usually handled by what devices?

2. What is the term used for devices which automatically try to restore power shortly after a trip?

3. Why are manually operated disconnect switches placed in substations?

4. What does a GCFI device detect to trip?

5. a) Large breakers come in what two types?

   b) Which type is the newer technology?

6. Where are fuses used?

7. What two devices provide critical information to the relays?

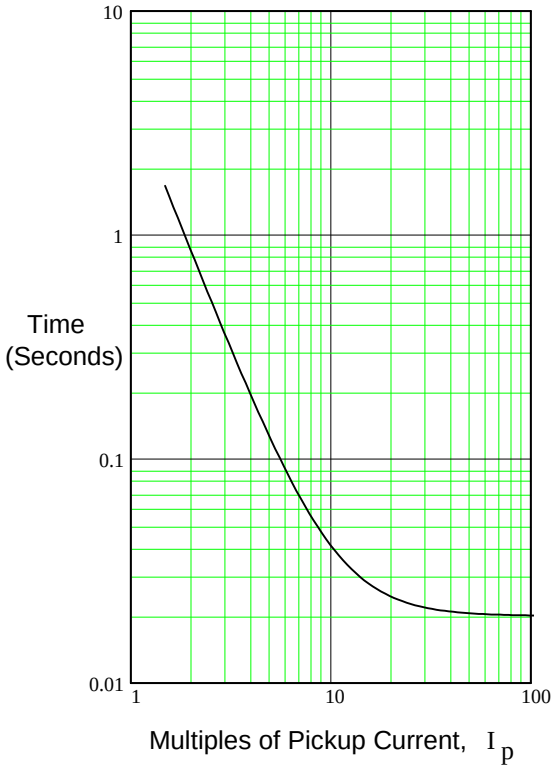
8. a) What is the relationship between relays and breakers.

   b) What is the difference between older relays and newer relays.

9. The time-delay curve of an over-current relay is shown.
   a) How long will it take to trip the breaker if the current is 6 times the pickup current?

   b) How long will it take to trip the breaker if the current is 10 times the pickup current?

   c) What is the quickest this relay will trip the breaker?



10. What type of relay can detect a relatively small unwanted current to ground?

11. What type of relay requires communications between substations, and what is it's purpose?

12. How does one set up the relays so as to minimize the impact of a fault on customers?

13. What type of power is used for the relays and breakers?

14. What conditions must be met before breakers are reset?