1. What is the “Safety valve” in an electrical system? Overcurrent device
2. What organizations establish standards (ratings, types, classifications, etc.) for overcurrent devices? CSA and NEMA
3. What is the maximum value for a fuse when it is permissible to round up to the next common size? 600 A
4. What temperature rating is used for switches when the conductors are No. 1/0? 75°C
5. What precaution must be taken with a switch that is rated “Isolation Switch Only”? Open only under no load
6. What rating must be on a switch used for a motor circuit? Horsepower
7. What are some ratings that must be considered when installing fuses other than the amperage rating? Voltage, interrupting rating, and response time
8. What is the maximum allowable circuit breaker for a conductor with a rating of 475 A? 500 A
9. What is the maximum allowable circuit breaker for a conductor with a rating of 675 A? 600 A
10. What is the term used to describe the maximum value of short circuit or fault current a fuse can safely disconnect at rated voltage? Interrupting rating
11. What two factors are used to determine equipment withstand ratings? How much current and how long it will flow
12. Which type of current flows within the normal conducting path? (Overload, short-circuit, ground-fault) Overload
13. How does magnitude of current affect response time for a fuse element? Inversely proportional (Magnitude increase time decreases)
14. How are the two elements connected in a dual-element fuse? (series or parallel) series
15. What are the two sections in a Dual-element fuse? Short circuit section and Overload section
16. What is the maximum percentage of the motor FLA when using dual-element, time-delay fuses for motor overload protection? 125%
17. What about motors with a SF less than 1.15? 115%
18. Are you allowed to use a TD fuse larger than 175% of the motor FLA? Yes if you try 175% and it will not allow the motor to start you can go up to 225%
19. What is the difference between a dual-element, time-delay fuse and a dual-element, time-delay, current-limiting fuse? Current limiting has a faster response time in short circuits
20. What material is used for the links in the best current-limiting fuses? Silver
21. Which fuse type has the lowest energy let-through? Current-limiting (non-time-delay)
22. What information must be shown on a cartridge fuse? Amps, Volts, interrupting rating (if over 10,000), current-limiting type, trade name or manufacturer, and class
23. What are some methods of ensuring only fuses of the proper rating and type are installed in a system? Fuse length, ferrule diameter, blade size and shape, etc.
24. What unique feature on a Class R fuseblock ensures a standard (non-current-limiting) fuse will not be installed by mistake? Rejection pin
25. Do D-type or P-type standard fuses have low melting characteristics? Yes Both
26. What is the interrupting capacity of a Class H fuse? 10,000 A
27. Which type of standard code fuse has the highest interrupting rating? K
28. What type of protection is provided by HRCl fuses? Both overload and overcurrent
29. What type of protection is provided by HRClI fuses? Overcurrent only
30. What determines if a fuse is considered “Time-delay”? It can carry 500% of its rating for at least 10 sec
31. What is the interrupting rating for HRCl-R fuses? 200,000 A
32. What is the interrupting rating of a HRCl-R fuse installed in a standard (no rejection feature) fuseholder? 10,000 A
33. How do HRCl-J fuses compare physically with Class K and H fuses? Smaller
34. How do HRCl-T fuses compare physically with Class J fuses? Smaller
35. What is the smallest switch available for Class L type fuses? 800 A
36. Supplemental fuses are similar to what Class of fuse? Class G
37. What is the diameter of a Class G fuse? 10 mm (13/32”)
38. What standard plug fuse type consists of a separate fuse and adapter? Type S
39. Which voltage scales should be used to first test a circuit for a blown fuse? Highest
40. What voltage should be read across (line to load) a good fuse? 0 volts
41. What resistance is measured across a good fuse that has been removed from the system? Zero or minimal
42. What resistance is measured across a bad fuse that has been removed from the system? High or infinity
43. How do cable protectors differ from fuses? Fuses open a phase. Cable limiters can isolate a problem cable without opening the phase
44. What is the advantage of having separate cable limiters installed on individual customer conductors when they are fed from a transformer? One customer’s problems will not affect the power to the others
45. Using the time-current curve in Figure 17-23 how many seconds would a 60 A fuse take to blow with the same 100 A starting current given in the example? 200 seconds
46. What two current values are often used for withstand ratings? Peak and RMS
47. What is the peak let-through current for a 40,000 A short-circuit current and a 400 A fuse based on Fig. 17-25? Approx 65,000 Measure distance and estimate
48. Which has a better current-limiting ability given the same amperage rating, fuses or circuit breakers? Fuses
49. What is the most common type of circuit breaker in use today? Molded-case
50. What does the term “trip-free” mean in relation to a circuit breaker? If handle is held in on position (breaker lock) it will still trip
51. What is indicated by “SWD” on a breaker? Switching duty
52. What is the maximum percent loading (continuous) permitted for a breaker that is not marked with a percent? 80%
53. What is the maximum interrupting rating for a breaker that does not have a rating shown on the breaker? 5000A
54. Is a breaker rated 347/600 V permitted on a 600V, 3 wire, delta ungrounded system? **No (Only grounded neutral system)**

55. What are some factors that can affect proper operation of circuit breakers? **Moisture, dust, vibration, corrosive fumes and vapors, and excessive tripping or switching**

56. What must happen when two series-tested combination breakers experience a short circuit? **Both trip**

57. What is required by Rule 14-014(e)? **Field marking of all series-related equipment**

58. What is the maximum percentage of the motor FLA for instantaneous-trip circuit breaker ratings? **1300%**