



Practice quiz: Texas Master Electrician

10 questions. The answer key is on page 2.

Name _____ Date _____

1. Which NEC table gives the full-load current to use when you size the conductors for a three-phase induction motor?
 - A. The motor nameplate
 - B. Table 430.248
 - C. Table 430.250
 - D. Table 310.16
2. Which current is used to set a motor's overload protection?
 - A. The full-load current on the nameplate
 - B. The full-load current from the table
 - C. The locked-rotor current
 - D. The ampacity of the branch-circuit conductors
3. A 7.5 hp, 230 V, three-phase motor has a table full-load current of 22 A. What is the minimum ampacity of its branch-circuit conductors?
 - A. 22 A
 - B. 25.3 A
 - C. 33 A
 - D. 27.5 A
4. For the same motor with a table full-load current of 22 A, what is the largest standard inverse-time circuit breaker permitted for branch-circuit short-circuit and ground-fault protection, using the general percentage and the next higher standard size where the result is not a standard rating?
 - A. 40 A
 - B. 60 A
 - C. 50 A
 - D. 70 A
5. A motor has a nameplate full-load current of 18.6 A and a service factor of 1.15. What is the maximum overload setting before any starting exception is used?
 - A. 21.4 A
 - B. 23.3 A
 - C. 26.0 A
 - D. 27.5 A
6. A motor disconnecting means is rated in amperes. What is its minimum rating compared with the motor's full-load current?
 - A. Equal to the nameplate current
 - B. 125% of the table full-load current
 - C. Equal to the rating of the branch-circuit device
 - D. 115% of the table full-load current
7. A feeder supplies a 10 hp motor with a table full-load current of 14 A and a 5 hp motor with a table full-load current of 7.6 A, both 460 V, three-phase. What is the minimum ampacity of the feeder conductors?
 - A. 25.1 A
 - B. 21.6 A
 - C. 27.0 A
 - D. 17.5 A
8. The conductors from a generator's terminals to its first overcurrent device must have an ampacity of at least what percent of the generator nameplate current?
 - A. 100%
 - B. 125%
 - C. 115%
 - D. 150%
9. A legally required standby system must supply its loads within how many seconds after normal power fails?
 - A. 10 seconds
 - B. 30 seconds
 - C. 90 seconds
 - D. 60 seconds
10. What is the full-load current of a 50 kVA, 208 V, three-phase generator?
 - A. 138.8 A
 - B. 159.6 A
 - C. 240.4 A
 - D. 60.1 A



Answer key

Texas Master Electrician. One line of why for each answer.

1. **C** Table 430.250 lists full-load currents for three-phase motors, and 430.6(A)(1) sends you to it for conductor sizing.
2. **A** Overload protection is sized from the nameplate current of the actual motor.
3. **D** Conductors take 125% of the table full-load current: $22 \times 1.25 = 27.5$ A.
4. **B** An inverse-time breaker is limited to 250% of the table current: $22 \times 2.5 = 55$ A.
5. **B** A motor with a service factor of 1.15 takes 125% of the nameplate current: $18.6 \times 1.25 = 23.3$ A.
6. **D** A disconnect rated in amperes must be at least 115% of the full-load current from the table.
7. **A** The feeder takes 125% of the largest motor plus the full-load current of the others: $14 \times 1.25 + 7.6 = 17.5 + 7.6 = 25.1$ A.
8. **C** The rule sets the minimum at 115% of the nameplate current rating.
9. **D** Legally required standby has a 60 second limit.
10. **A** Current is VA divided by volts times 1.732: $50,000 / (208 \times 1.732) = 138.8$ A.

Full explanations

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