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Continuing Education Course #632
Motors/Generators and the NEC:
Course III: NEC: Motors & Generators

1. The US grid for the contiguous states contains how many major regions?
 a. one
 b. two
 c. three
 d. four

2. Which American institute conducts research and development related to the generation and delivery of electricity?
 a. EPRI
 b. NEC
 c. NERC
 d. NESC

3. What part of the NEC covers motor controllers?
 a. Art. 470
 b. Part I
 c. Part II
 d. Part IX

4. What are motors NOT specifically rated on their nameplates?
 a. hp
 b. I²R
 c. VA
 d. W

5. A given squirrel-cage motor rate 460 V has a nameplate hp rating of 1.5 hp and a nameplate current rating is 2.1 A.

What is the correct horsepower rating to use for the ampacity of the supplying conductors?

Partial Table 430.250 for 460 V Motor

Horsepower	Current [A]
1	2.1
1.5	3.0
2	3.4
3	4.8

- a. 1
 b. 1.5

- c. 2
- d. 3

6. What is the minimum torque for motor terminal was using 14 AWG wire?

- a. 0.7 lb-in
- b. 0.8 lb-in
- c. 7 lb-in
- d. 8 lb-in

7. In general, single motors used in continuous duty applications use conductors with an ampacity of _____ full-load current.

- a. 100%
- b. 110%
- c. 115%
- d. 125%

8. A certain branch circuit contains the following.

4 A FLA Motor

3 A FLA Motor

2 A of Noncontinuous Loads

1 A of Continuous Non-Motor Loads

What ampacity is required of the branch-circuit conductors?

- a. 10 A
- b. 11 A
- c. 12 A
- d. 15 A

9. The overload protection requirements of Part III does NOT apply when the loss of the motor results in a _____.

- a. hazard
- b. loss of pumps
- c. motors over 500 V
- d. motors over 1000 hp

10. A motor uses a separate overload device. The motor is rated at 2 hp, 208 V, with a service factor of 1.30 and a full-load amperage of 7 A.

What percentage should the overload be set?

- a. 100% of FLA
- b. 115% of FLA
- c. 125% of FLA
- d. depends on temperature rise

11. What percentage of full-load current should a single-phase motor short-circuit and ground-fault protection be set if using an inverse time circuit breaker?

- a. 115
- b. 125
- c. 150
- d. 250

12. A motor short-circuit protection fuse is set to the next higher "standard" size of 110 A. The original full-load current was 35 A. However, the motor still will not start up. The standard size fuses are 100, 110, 125, 150, 175, 200....

What size fuse may be used?

- a. 125 A
- b. 150 A
- c. 175 A
- d. 200 A

13. What is the minimum separation between bare metal parts of opposite polarity on the same surface for a system not over 600 V?

- a. 0.5 inches
- b. 1.0 inches
- c. 1.5 inches
- d. 2.0 inches

14. What in general is the rating for the disconnecting means for a 1000 V or less system?

- a. 100%
- b. 115%
- c. 125%
- d. 140%

15. Stationary generator must be _____.

- a. listed
- b. protected at 125%
- c. use GFCI if large and non-portable
- d. use automated generator shutdown switches

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