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Continuing Education Course #323
What every Engineer should know about
Power Engineering Fundamentals

1. The majority of residential houses today will have what standard voltage?
 - a. 208/120v
 - b. 240/120v
 - c. 480v
 - d. 480/277v
2. True or False: Panelboards range in sizes from 12, 1-pole circuit breakers to 42, 1-pole circuit breakers.
 - a. True
 - b. False
3. Circuit breakers are installed to protect what?
 - a. Protect the motor from theft
 - b. Protect the panelboard from being opened
 - c. Protect the conductors
 - d. Protect the conduit
4. The main types of conduits used in industrial construction today are:
 - a. PVC, GRS, EMT and Flex
 - b. PVC, Aluminum, Cable Tray and Fiberglass
 - c. GRS, IMC, Wireway and Cable tray
 - d. PVC, GRS, PVC-Coated, Rigid Aluminum
5. True or False. Schedule 80 PVC conduits have a thinner wall than schedule 40 PVC?
 - a. True
 - b. False
6. When specifying PVC-coated conduits, it is a good idea to make sure the installer is what?
 - a. Trained to install industrial conduits
 - b. Trained electrician
 - c. Trained and certified to install PVC coated conduits
 - d. A qualified technician
7. True or False: Liquid tight flexible conduit, per code, is limited to only 6' in length?
 - a. True
 - b. False
8. Cable trays are used for what purpose?
 - a. To protect and provide a raceway for conductors
 - b. To provide a smooth flat place to lay equipment on

- c. To protect electrical equipment from water
 - d. To protect from Arc Flash
9. What are the four main types of conductors to specify for industrial or commercial type projects?
- a. TJN, XYN, RJW and Romex
 - b. THHN, XHN, RHN, ELP
 - c. XLP, ELP, XLN, THHN
 - d. THHN, XHHW, RHW, Romex
10. True or False: Copper wire is used for the majority of projects in the USA?
- a. True
 - b. False
11. A #4/0 AWG conductor is smaller size conductor than what conductor listed below?
- a. 250kCMIL
 - b. #3/0 AWG
 - c. #3 AWG
 - d. #8 AWG
12. What does AWG stand for?
- a. Amps Watts Gauge
 - b. American Watt Gauge
 - c. American Wire Gauge
 - d. Amsted Wire Group
13. What NEMA Type should be specified for enclosures that are installed in the outdoors and subject to rain?
- a. NEMA 1
 - b. NEMA 12
 - c. NEMA 7
 - d. NEMA 3R
14. True or False: Motor control centers, MCCs, provide the most suitable method for grouping electrical motor control, automation, and power distribution in a compact package.
- a. True
 - b. False
15. How does a VFD work?
- a. Varies the frequency and current supplied to the panelboard
 - b. Varies the frequency and voltage supplied to the electric motor
 - c. Varies the power and power factor and point of common coupling
 - d. Varies the capacitance and inductance of the circuit.
16. Which piece of power distribution equipment is the largest in physical size?
- a. Switchboard
 - b. Switchgear
 - c. Motor Control Center
 - d. Panelboard
17. What are typical sizes for dry type transformers seen in building and plants?
- a. 3kVA to 45kVA
 - b. 300kVA to 450kVA

- c. 3VA to 45VA
- d. 3MVA to 4MVA

18. True or False: Metal halide and High pressure sodium lights are the most common lights specified today.

- a. True
- b. False

19. Generators are driven by what two main standard fuels?

- a. Diesel and propane
- b. Diesel and Unleaded Gasoline
- c. Diesel and Natural Gas
- d. Propane and Natural Gas

20. PLC stands for what?

- a. Program Leading Committee
- b. Programmable Logic Center
- c. Programmable Logic Controller
- d. Program Landing Center

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