

Republic of the Philippines
PROFESSIONAL REGULATION COMMISSION
Manila

BOARD OF ELECTRICAL ENGINEERING

REGISTERED MASTER ELECTRICIAN Licensure Examination

PHILIPPINE ELECTRICAL CODE

INSTRUCTION: Select the correct answer for each of the following questions. Mark only one answer for each item by shading the box corresponding on the letter of your choice on the answer sheet provided. STRICTLY, NO ERASURES ALLOWED. Use pencil No. 1 only.

MULTIPLE CHOICES

1. If excessive amounts of metal in or on a building become energized and could be subject to personal contact, which of the following will provide additional safety measures:
 - a. **Adequate bonding and grounding**
 - b. Bonding
 - c. A bonding jumper
 - d. None of the above

2. An outlet for specific appliances, including laundry equipment, must be located within how many mm of the appliance:
 - a. 2000 mm
 - b. 900 mm
 - c. **1800 mm**
 - d. 1000 mm

3. Upon completion of construction or the conclusion of the purpose for which it was installed, temporary wiring shall be removed within which of the following time frames:
 - a. 31 days after an event
 - b. 60 days after the conclusion of an event or construction
 - c. 90 days after the completion
 - d. **Immediately**

4. A traveling cable shall be allowed to run without using a raceway under which of the following conditions:
 - a. The distance from the first point support does not exceed 6 feet.
 - b. The conductors are grouped and taped together.
 - c. The conductors are in their original sheath.
 - d. **All of the above**

5. Conductors that supply a fire pump motor must have a rating not less than ____ percent of the sum of the fire pump motor's full load current and ____ percent of any associated fire pump accessory equipment:
 - a. 80, 100
 - b. **125, 100**

- c. 115, 125
- d. 100, 100
6. The antenna for a satellite system must be grounded to which of the following
- Interior metal water piping system, within 5 feet from its point of entrance
 - The building or structure grounding electrode system
 - An accessible means external to the building
 - All of the above**
7. Type UF cable shall be used for which of the following applications:
- Concrete encased
 - Direct buried**
 - Service entrance cable
 - None of the above
8. Service disconnect means shall clearly indicate which of the following:
- The minimum and maximum voltage rating
 - If it is in the open or closed position**
 - Both of the above
 - None of the above
9. The total connected load in watts of three electric heaters rated 1000 watts and 1100 watts at 120 volts and 800 watts at 240 volts is:
- 2417 watts**
 - 2900 watts
 - 3100 watts
 - 5800 watts
10. A continuous load is one in which the maximum current is expected to continue for at least which of the following:
- 24 hours, non-stop
 - 12 hours or more
 - 6 hours or more
 - 3 hours or more**
11. When installing rigid metal conduit (RMC), there cannot be more than the equivalent of four quarter bends (360 degrees) between which of the following:
- Conduit bodies
 - Outlet boxes
 - Junction boxes
 - All of the above**
12. A nonmetallic wireway is not permitted in which of the following locations unless it is specifically marked otherwise:
- Where the wireway would be exposed to sunlight**
 - Where subject to corrosive vapors
 - In wet locations
 - All of the above
13. Feeders that contain a common neutral are permitted to supply which of the following:
- One, two or three sets of 3-wire feeders
 - Two sets of 4-wire feeders
 - Two sets of 5-wire feeders
 - All of the above**
14. Disregarding any exceptions, a conductor rated 56 amperes shall be protected by a fuse sized at which of the following:
- 60 amp**
 - 50 amp
 - 30 amp
 - 20 amp

15. Light and power systems conductors 600 volts or less may occupy the same enclosure only when all of the conductors meet which of the following requirements:
- a. All of the conductors are insulated.
 - b. All conductors are insulated to meet the maximum temperature rating for the enclosure.
 - c. All conductors are insulated for the maximum voltage applied to any conductor in the enclosure.**
 - d. None of the above
16. Nine 8.0 sq mm THHN copper conductors in a conduit at 30 degrees C have a maximum allowable ampacity of which of the following:
- a. 33 amperes each
 - b. 38.5 amperes each**
 - c. 55 amperes each
 - d. 66 amperes each
17. The minimum individual amperes for two hot, ungrounded feeder circuit conductors running to a commercial building that has a general lighting load of 50,000 volt amperes, supplied by a single phase, 240 volt feeder circuit is closest to which of the following:
- a. 208 amperes
 - b. 217.39 amperes**
 - c. 228 amperes
 - d. 480 amperes**
18. Disregarding any exceptions, a copper-clad aluminum conductor used for overhead services must be at least which of the following sizes:
- a. 3.5 sq mm
 - b. 5.5 sq mm**
 - c. 8.0 sq mm
 - d. 14.0 sq mm**
19. A multi-wire branch circuit that supplies more than one device on the same yoke in a dwelling unit must be protected by which of the following:
- a. One fuse
 - b. Two single-pole circuit breakers that are tied together**
 - c. Two single-pole circuit breakers that operate independently
 - d. One single-pole non-fused disconnect
20. Which of the following receptacles may be connected to small appliance circuits:
- a. A garage ceiling receptacle for a garage door opener
 - b. A living room receptacle for a television set
 - c. A receptacle in the kitchen for an electric clock**
 - d. None of the above
21. A circuit conductor that is intentionally grounded is which of the following:
- a. Grounded conductor**
 - b. Equipment grounding conductor
 - c. Grounding conductor
 - d. Grounding electrode
22. The maximum total voltage drop of two feeders and three branch circuits to the farthest outlet in a wiring system should not exceed which of the following:
- a. 2 percent for the feeders
 - b. 3 percent for the branch circuits**

- c. 5 percent
 - d. 10 percent maximum
23. Class II locations are considered hazardous because which of the following is present in quantities sufficient to create the potential for combustion:
- a. **Combustible dust**
 - b. Ignitable vapors
 - c. Combustible flyings
 - d. None of the above
24. Each kitchen in a two-family dwelling unit requires a minimum of which of the following in order to meet the small appliance load:
- a. Two 15 amp circuits
 - b. One 20 amp circuit
 - c. **Two 20 amp circuits**
 - d. Four 20 amp circuits
25. Flexible cords are not allowed for use in which of the following locations:
- a. **To replace fixed wiring of a structure**
 - b. Hoists
 - c. Cranes
 - d. All of the above
26. Grounding electrodes perform which of the following functions:
- a. Prevent current flow into the earth
 - b. Absorb stray currents
 - c. Return neutral current to the earth
 - d. **Make an electrical connection to the earth**
27. The function of a supplementary overcurrent protective device is best described by which of the following statements:
- a. **Is not a substitute for branch circuit overcurrent protection**
 - b. Is required to be installed in light fixtures
 - c. Must be installed in any branch circuit system
 - d. Shall not required on circuits rated more than 50 amps
28. Which of the following colors of insulation or marking are permitted to identify "hot" phase conductors in conduit wiring methods?
- a. Black, red, and blue for 120/208-volt systems
 - b. Yellow, orange, and brown for 277/480-volt systems
 - c. Any colors except white, gray, or green
 - d. **All of the above**
29. Electrical motors with the highest voltage rating are used for which of the following purpose(s)?
- a. To produce the maximum possible power from the motors
 - b. To lower power consumption
 - c. **To reduce the size of the supply conductors required**
 - d. All of the above
30. Low voltage equipment in a hospital that comes in frequent contact with people's bodies must be which of the following:
- a. Able to operate at an electrical potential of 10 volts or less
 - b. Approved as intrinsically safe
 - c. Be moisture resistant

d. All of the above

31. If an outlet is in an underfloor raceway and is disconnected, then which of the following actions must be taken on the circuit conductors supplying the outlet:
- a. A blank cover plate installed on the outlet box
 - b. Be removed from the raceway**
 - c. Be spliced and reconnected
 - d. None of the above
32. Other than service conductors, conductors shall not be installed in the same service raceway unless they are which of the following:
- a. Grounding conductors**
 - b. Shielded conductors
 - c. Both of the above
 - d. Either of the above
33. Overcurrent devices in dwelling units and hotel guest rooms shall not be located in which of the following areas:
- a. Bedrooms
 - b. Bathrooms**
 - c. Kitchens
 - d. All of the above
34. In order to balance a 3-wire, single-phase 230/115 volt circuit, which of the following must be done:
- a. The neutral conductor must carry the unbalanced current.**
 - b. The hot conductor must carry the total current.
 - c. The neutral conductor should be used for grounding only.
 - d. None of the above
35. In fixed electric space heating equipment, a disconnection means shall be provided from all ungrounded conductors to which of the following equipment components:
- a. The heater
 - b. Motor controllers
 - c. Supplementary overcurrent protection devices
 - d. All of the above**
36. Computation of fluorescent fixture loads shall be based on which of the following:
- a. The total ampere rating of the fixture**
 - b. The total wattage of the lamps
 - c. The total volts of the wiring system
 - d. None of the above
37. Parallel conductors in each phase or neutral shall be which of the following:
- a. The same length and terminated in the same manner**
 - b. Any size trade wire
 - c. Either A or B
 - d. None of the above
38. If single conductors are not installed in a raceway and stacked longer than 2 feet without maintaining spacing, then which of the following is true:
- a. The ampacity of each conductor shall be increased

- b. The ampacity of each conductor shall be reduced**
 - c. The conductor must increase to the next size up
 - d. None of the above

- 39. NM cable installations shall conform to which of the following:
 - a. It may be covered with plaster
 - b. It may be fished through air voids in masonry block or tile walls**
 - c. Both of the above
 - d. None of the above

- 40. The ampacity of multiconductor cables installed in a cable tray shall be derated based on which of the following:
 - a. The total number of current carrying conductors in the cable
 - b. The total number of current carrying conductors in the cable tray**
 - c. Both of the above
 - d. None of the above

- 41. Switching should be done in which of the following:
 - a. The wall
 - b. The ungrounded conductor**
 - c. The grounded conductor
 - d. A termination box

- 42. Fuses must be clearly marked with which of the following:
 - a. Voltage rating
 - b. Ampere rating
 - c. Interruption rating, if other than 10,000 amperes
 - d. All of the above**

- 43. Type FCC cables shall be clearly and permanently marked with which of the following:
 - a. The conductor material
 - b. The ampacity
 - c. The maximum temperature rating
 - d. All of the above**

- 44. Grounded interior wiring shall not be permitted to be connected to a power supply unless the supply system contains a corresponding conductor that is which of the following:
 - a. Ungrounded
 - b. Grounded**
 - c. Bonded
 - d. None of the above

- 45. Even if an outlet box is listed and marked by the manufacturer as suitable to be used as the sole support for a fixture, the fixture shall not weigh more than which of the following:
 - a. 100 pounds
 - b. 70 pounds**
 - c. 50 pounds
 - d. 35 pounds

- 46. A 20 ampere rated branch circuit in the living room of a dwelling unit shall be permitted to carry a maximum load of which of the following:
 - a. 10 amps
 - b. 15 amps**
 - c. 20 amps
 - d. 40 amps**

47. A service mast used to support service drop conductors shall be supported by which of the following:
- a. Glass or porcelain
 - b. **Braces or guys**
 - c. Studs or hangers
 - d. None of the above
48. A transformer enclosure that extends directly to an underwater pool light and forms a shell must have which of the following:
- a. One grounding terminal
 - b. Be of a nonmetallic material
 - c. **The number of conduit entries plus one**
 - d. None of the above
49. Which of the following entrances does not require a switched outlet:
- a. An attic
 - b. **A drive through garage door**
 - c. A walk through porch door
 - d. All of these require a switched outlet
50. Which of the following receptacles do not need to be grounded:
- a. Receptacles located on an interior garage wall
 - b. Receptacles for electric ranges
 - c. Outdoor receptacles
 - d. **All of the above**