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05 changes-2 5 Hours of Credit

Article 90 Introduction

Utilities include entities that are designated or recognized by governmental law or regulation by public service/utility commissions.

- (a) True
- (b) False

Chapter 1 General

Article 100 Definitions

2. A component of an electrical system that is intended to carry or control but not utilize electric energy is a(n) _____.

- (a) raceway
- (b) fitting
- (c) device
- (d) enclosure

3. In a grounded system, the conductor that connects the grounded conductor of a service, a feeder supplying a separate building or structure, or the source of a separately derived system to the grounding electrode is called the _____ conductor.

- (a) main grounding
- (b) common main
- (c) equipment grounding
- (d) grounding electrode

4. A handhole enclosure is an enclosure identified for use in underground systems, provided with an open or closed bottom, and sized to allow personnel to _____, for the purpose of installing, operating, or maintaining equipment or wiring or both.

- (a) enter and exit freely
- (b) reach into but not enter
- (c) have full working space
- (d) examine visually

5. The Code defines a(n) _____ as one familiar with the construction and operation of the electrical equipment and installations, and who has received safety training on the hazards involved.

- (a) inspector
- (b) master electrician
- (c) journeyman electrician
- (d) qualified person

6. A(n) _____ is intended to provide limited overcurrent protection for specific applications and utilization equipment, such as luminaires and appliances. This limited protection is in addition to the protection provided by the required branch circuit overcurrent protective device.

- (a) supplementary overcurrent protective device
- (b) transient voltage surge suppressor
- (c) arc-fault circuit interrupter
- (d) Class A GFCI

Article 110 Requirements for Electrical Installations

7. Switchboards, panelboards, industrial control panels, meter socket enclosures, and motor control centers in commercial and industrial occupancies that are likely to require _____ while energized must be field marked to warn qualified persons of the danger associated with an arc flash from line-to-line or ground faults.

- (a) examination
- (b) adjustment
- (c) servicing or maintenance
- (d) a, b, or c

8. For equipment rated 1,200A or more that contains overcurrent devices, switching devices or control devices, there must be one entrance to the required working space not less than 24 in. wide and 6 ft, 6 in. high at each end of the working space. Where the depth of the working space is twice that required by 110.26(A)(1), _____ entrance(s) are permitted.

- (a) one
- (b) two
- (c) three
- (d) none of these

Chapter 2 Wiring and Protection

Article 200 Use and Identification of Grounded Neutral Conductors

9. Where grounded neutral conductors of different wiring systems are installed in the same raceway, cable, or enclosure, each grounded neutral conductor must be identified by a different one of the acceptable methods in order to distinguish the grounded neutral conductors of each system from the other.

- (a) True
- (b) False

Article 210 Branch Circuits

10. When more than one nominal voltage system exists in a building, each ungrounded system conductor must be identified by system. The means of identification must be permanently posted at each branch-circuit panelboard.

- (a) True
- (b) False

11. All ungrounded (hot) conductors from two or more branch circuits terminating on multiple devices or equipment on the same yoke must have a means to be disconnected simultaneously in _____ occupancies.
- (a) dwelling unit
 - (b) commercial
 - (c) industrial
 - (d) all of these
12. All 15 and 20A, 125V single-phase receptacles _____ of commercial occupancies must have GFCI protection for personnel.
- (a) in bathrooms
 - (b) on rooftops
 - (c) in kitchens
 - (d) all of these
13. The location of the arc-fault circuit interrupter can be at other than the origination of the branch circuit if _____.
- (a) the arc-fault circuit interrupter is installed within 6 ft of the branch-circuit overcurrent device
 - (b) the circuit conductors up to the arc-fault circuit interrupter must be in a metal raceway or a cable with a metallic sheath
 - (c) both a and b
 - (d) none of these
14. A receptacle outlet must be installed in dwelling units for every kitchen and dining area countertop space _____, and no point along the wall line can be more than 2 ft, measured horizontally from a receptacle outlet in that space.
- (a) wider than 10 in.
 - (b) wider than 3 ft
 - (c) 18 in. or wider
 - (d) 12 in. or wider
15. For the purpose of determining the placement of receptacles in a dwelling unit kitchen, a(n) _____ countertop is measured from the connecting edge.
- (a) island
 - (b) usable
 - (c) peninsular
 - (d) cooking
16. In dwelling units, the required wall receptacle outlet is allowed to be installed on the side or front of the basin cabinet if no lower than _____ below the countertop.
- (a) 12 in.
 - (b) 18 in.
 - (c) 24 in.
 - (d) 36 in.
17. Guest rooms or guest suites provided with permanent provisions for _____ must have receptacle outlets installed in accordance with all of the applicable requirements for a dwelling unit in accordance with 210.52.
- (a) whirlpool tubs

- (b) bathing
- (c) cooking
- (d) internet access

18. A 15 or 20A, 125V, single-phase receptacle outlet must be located within 25 ft of heating, air-conditioning, and refrigeration equipment for _____ occupancies.

- (a) dwelling
- (b) commercial
- (c) industrial
- (d) all of these

Article 215 Feeders

19. Where the premises wiring system contains feeders supplied from more than one voltage system, each ungrounded (hot) conductor, where accessible, must be identified by the system. Identification can be by _____ or other approved means. Such identification must be permanently posted at each feeder panelboard or similar feeder distribution equipment.

- (a) color-coding
- (b) marking tape
- (c) tagging
- (d) a, b, or c

Article 225 Outside Branch Circuits and Feeders

20. A building or structure must be supplied by a maximum of _____ feeder(s) or branch circuit(s).

- (a) one
- (b) two
- (c) three
- (d) as many as desired

Article 230 Services

21. Cable tray systems are permitted to support service-entrance conductors. Cable trays used to support service-entrance conductors can contain only service-entrance conductors _____.

- (a) unless a solid fixed barrier separates the service-entrance conductors
- (b) only for under 300 volts
- (c) only in industrial locations
- (d) only for over 600 volts

22. Meter disconnect switches that have a short-circuit current rating equal to or greater than the available short-circuit current are permitted ahead of the service-disconnecting means.

- (a) True
- (b) False

Article 240 Overcurrent Protection

23. Overcurrent protection for tap conductors not over 25 ft is not required at the point where the conductors receive their supply providing the _____.

- (a) ampacity of the tap conductors is not less than one-third of the rating of the overcurrent device protecting the feeder conductors being tapped
- (b) tap conductors terminate in a single circuit breaker or set of fuses that limit the load to the ampacity of the tap conductors
- (c) tap conductors are suitably protected from physical damage
- (d) all of these

24. For industrial installations only, a tap can be made without overcurrent protection when the transformer secondary conductors have a total length of not more than _____. The tap conductors must have an ampacity not less than the secondary current rating of the transformer and the sum of the ratings of the overcurrent devices.

- (a) 8 ft
- (b) 25 ft
- (c) 35 ft
- (d) 75 ft

25. Overcurrent protection devices are not permitted to be located _____.

- (a) where exposed to physical damage
- (b) near easily ignitable materials, such as in clothes closets
- (c) in bathrooms of dwelling units
- (d) all of these

Article 250 Grounding and Bonding

26. For grounded systems, electrical equipment and wiring and other electrically conductive material likely to become energized are installed in a manner that creates a permanent, low-impedance circuit capable of safely carrying the maximum ground-fault current likely to be imposed on it from where a ground fault may occur to the _____.

- (a) ground
- (b) earth
- (c) electrical supply source
- (d) none of these

27. Grounding and bonding conductors cannot be connected by _____.

- (a) pressure connections
- (b) solder
- (c) lugs
- (d) approved clamps

28. For a single separately derived system, the grounding electrode conductor connects the grounding electrode to the grounded neutral conductor of the derived system at the same point on the separately derived system where the _____ is installed.

- (a) metering equipment
- (b) transfer switch
- (c) bonding jumper
- (d) largest circuit breaker

29. A grounding electrode at a separate building or structure is required where one multiwire branch circuit serves the building or structure.

- (a) True
- (b) False

30. Where none of the items in 250.52(A)(1) through (A)(6) are present for use as a grounding electrode, one or more of the following must be installed and used as the grounding electrode: _____.

- (a) a ground ring
- (b) rod and pipe electrodes or plate electrodes
- (c) local metal underground systems or structures
- (d) any of these

31. The metal frame of a building where one of the four Code-prescribed methods of making an earth connection has been met may serve as part of the grounding electrode system.

- (a) True
- (b) False

32. The supplementary electrode allowed by the Code is different from a supplemental electrode, and is allowed to be connected to the equipment grounding (bonding) conductors but cannot be used in place of an effective ground-fault current path for electrical equipment.

- (a) True
- (b) False

33. An exothermic or irreversible compression connection to fireproofed structural metal is required to be accessible.

- (a) True
- (b) False

34. Regardless of the voltage of the electrical system, the electrical continuity of non-current carrying metal parts of equipment, raceways, and other enclosures in any hazardous (classified) location as defined in **Article** 500 must be ensured by any of the methods specified in 250.92(B)(2) through (B)(4). One or more of these _____ methods must be used whether or not supplementary equipment grounding (bonding) conductors are installed.

- (a) grounded
- (b) securing
- (c) sealing
- (d) bonding

35. The metal water pipe system of a building or structure is not required to be bonded to the separately derived system neutral terminal where the metal frame of the building or structure is used as the grounding electrode for the separately derived system and is bonded to the metal water piping in the area served by the separately derived system.

- (a) True
- (b) False

36. Liquidtight flexible metal conduit (LFMC) up to ½ in. trade size can be used as the equipment grounding (bonding) conductor if the length in any ground return path does not exceed 6 ft and the circuit conductors contained in the conduit are protected by overcurrent devices rated at _____ or less when the conduit is not installed for flexibility.

- (a) 15A
- (b) 20A

- (c) 30A
- (d) 60A

37. Conductors with insulation that is _____ cannot be used for ungrounded or grounded neutral conductor.

- (a) green
- (b) green with one or more yellow stripes
- (c) a or b
- (d) white

38. An equipment bonding jumper must be used to connect the grounding terminal of a grounding-type receptacle to a grounded box. Where the box is surface-mounted, direct metal-to-metal contact between the device yoke and the box can be permitted to ground the receptacle to the box.

- (a) True
- (b) False

39. Contact devices or yokes designed and listed as self-grounding are permitted in conjunction with the supporting screws to establish the grounding circuit between the device yoke and flush-type boxes.

- (a) True
- (b) False

Chapter 3 Wiring Methods and Materials

Article 300 Wiring Methods

40. Cables laid in wood notches require protection against nails or screws by using a steel plate at least _____ thick, installed before the building finish is applied. A thinner plate that provides equal or better protection may be used if listed and marked.

- (a) 1/16 in.
- (b) 1/8 in.
- (c) 1/2 in.
- (d) none of these

41. When unable to maintain the minimum required distance from the edge of a wood framing member when installing a cable or nonmetallic raceway parallel to framing members, the cable or raceway shall be protected from penetration by screws or nails by a steel plate or bushing at least _____ and of appropriate length and width to cover the area of the wiring. A thinner plate that provides equal or better protection may be used if listed and marked.

- (a) 1/4 inch thick
- (b) 1/8 inch thick
- (c) 1/16 inch thick
- (d) 24 gauge

42. Nonmetallic raceways, cable trays, cablebus, auxiliary gutters, boxes, cables with a nonmetallic outer jacket and internal metal armor or jacket, cable sheathing, cabinets, elbows, couplings, nipples, fittings, supports and support hardware must be made of material _____.

- (a) listed for the condition
- (b) approved for the condition
- (c) both a and b
- (d) either a or b

43. Electrical wiring within the cavity of a fire-rated floor-ceiling or roof-ceiling assembly cannot be supported by the ceiling assembly or ceiling support wires. An independent means of support must be provided which _____.

- (a) is permitted to be attached to the ceiling assembly
- (b) cannot be attached to the ceiling assembly
- (c) can be nonmetallic material
- (d) none of these

Article 310 Conductors

44. Where _____ conductors are run in separate raceways or cables, the same number of conductors must be used in each raceway or cable.

- (a) parallel
- (b) control
- (c) communication
- (d) aluminum

45. Each current-carrying conductor of a paralleled set of conductors must be counted as a current-carrying conductor for the purpose of applying the adjustment factors of 310.15(B)(2)(a).

- (a) True
- (b) False

Article 312 Cabinets, Cutout Boxes, and Meter Socket Enclosures

46. Where raceways or cables enter above the level of uninsulated live parts of an enclosure in a wet location, a _____ must be used.

- (a) fitting listed for wet locations
- (b) explosionproof seal-off
- (c) fitting listed for damp locations
- (d) insulated fitting

Article 314 Outlet, Device, Pull and Junction Boxes, Conduit Bodies, Fittings and Handhole Enclosures

47. When counting the number of conductors in a box, a conductor running through the box with an unbroken loop not less than twice the minimum length required for free conductors in 300.14 is counted as _____ conductor(s).

- (a) one
- (b) two
- (c) zero
- (d) none of these

48. Plaster, drywall, or plasterboard surfaces that are broken or incomplete around boxes employing a flush-type cover or faceplate must be repaired so there will be no gaps or open spaces larger than _____ at the edge of the box.

- (a) ¼ in.

- (b) 1/2 in.
- (c) 1/8 in.
- (d) 1/16 in.

49. Underground raceways and cable assemblies entering a handhole enclosure must extend into the enclosure, but they are not required to be _____.

- (a) bonded
- (b) insulated
- (c) mechanically connected to the handhole enclosure
- (d) below minimum cover requirements after leaving the handhole

50. Handhole enclosure covers must require the use of tools to open, or they must weigh over _____. Metal covers and other exposed conductive surfaces must be bonded to an effective ground-fault current path.

- (a) 45 lb
- (b) 100 lb
- (c) 70 lb
- (d) 200 lb

2005 NEC Code Part 2 (05 changes 2) -Quiz Answer Sheet

- | | | | | | | | | | |
|----|---|---|---|---|----|---|---|---|---|
| 1 | a | b | c | d | 26 | a | b | c | d |
| 2 | a | b | c | d | 27 | a | b | c | d |
| 3 | a | b | c | d | 28 | a | b | c | d |
| 4 | a | b | c | d | 29 | a | b | c | d |
| 5 | a | b | c | d | 30 | a | b | c | d |
| 6 | a | b | c | d | 31 | a | b | c | d |
| 7 | a | b | c | d | 32 | a | b | c | d |
| 8 | a | b | c | d | 33 | a | b | c | d |
| 9 | a | b | c | d | 34 | a | b | c | d |
| 10 | a | b | c | d | 35 | a | b | c | d |
| 11 | a | b | c | d | 36 | a | b | c | d |
| 12 | a | b | c | d | 37 | a | b | c | d |
| 13 | a | b | c | d | 38 | a | b | c | d |
| 14 | a | b | c | d | 39 | a | b | c | d |
| 15 | a | b | c | d | 40 | a | b | c | d |
| 16 | a | b | c | d | 41 | a | b | c | d |
| 17 | a | b | c | d | 42 | a | b | c | d |
| 18 | a | b | c | d | 43 | a | b | c | d |
| 19 | a | b | c | d | 44 | a | b | c | d |
| 20 | a | b | c | d | 45 | a | b | c | d |
| 21 | a | b | c | d | 46 | a | b | c | d |
| 22 | a | b | c | d | 47 | a | b | c | d |
| 23 | a | b | c | d | 48 | a | b | c | d |
| 24 | a | b | c | d | 49 | a | b | c | d |
| 25 | a | b | c | d | 50 | a | b | c | d |

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