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Quiz 1

1. Installations under the exclusive control of an electric utility _____.
 - consist of service drops
 - are service laterals
 - have associated metering
 - all of the answers provided
2. These installations under the exclusive control of an electric utility are on property owned or leased by the electric utility for the purpose of _____.
 - communications
 - metering
 - generation
 - control
 - all of the answers provided and more
3. Some of the installations under the exclusive control of an electric utility shall be limited to _____ when legal rights-of-way cannot be obtained.
 - Shopping malls
 - Military bases
 - Office buildings
 - Grocery stores
4. An arc-fault interrupter (AFCI) is a device intended to provide protection from the effects of arc faults by _____ characteristics unique to arcing and by functioning to de-energize the circuit when an arc fault is detected.
 - constructing
 - recognizing
 - changing
 - welding

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5. Automatic means _____.
 - performing a function with the necessity of human intervention
 - changing a function with the necessity of human intervention
 - performing a function without the necessity of human intervention
 - none of the answers provided
6. Non-automatic _____.
 - does Not require human intervention to perform a function
 - performs a function without the necessity of human intervention
 - requires human intervention to perform a function
 - none of the answers provided
7. A bathroom is an area including a basin with _____ or more of the following: a toilet, a urinal, a tub, a shower, a bidet, or similar plumbing fixtures.
 - none
 - one
 - two
 - three
8. A Bonding jumper is the connection between _____ and the supply-side bonding jumper.
 - the ground circuit conductor
 - the secondary side bonding jumper
 - the equipment grounding conductor
 - all of the answers provided
9. An unintentional, electrically conducting connection between an ungrounded conductor of an electrical circuit and the _____.
 - normally non-current-carrying conductors
 - metallic raceways
 - earth
 - all of the answers provided and more
10. The name of the device that provides a means for connecting bonding conductors for communications systems to the grounding electrode system is called a (n) _____.
 - bonding system
 - ground electrode system
 - power system
 - Intersystem Bonding Termination
11. Kitchens much have _____.
 - a stove
 - a refrigerator
 - a sink
 - food preparation areas
12. A premises wiring system whose power is derived from a source of electrical energy or equipment other than a service is known as a _____.
 - separately derived system
 - inclusively derived system
 - co-existent system
 - dual powered system
13. The service-drop conductors connect to the service point at the service entrance cap. The conductors between the entrance cap and the service entrance conductors are called _____.
 - overhead head service conductors
 - side wall service conductors
 - dual purpose service conductors
 - multiple usage conductors
14. The underground conductors located between the service point and the first points of connection to the service-entrance conductors are called _____.
 - buried cables
 - sub-terrarium conductors
 - underground service conductors
 - sub-grade conductors
15. Where there is no terminal box, meter, or other enclosure, the point of connection between the service point and the service entrance conductors is considered to be _____.
 - the point of exit of the enclosure service conductors into the building
 - the point of the service drop into the building
 - the point of entrance of the service conductors into the building
 - the area of spaces for the service drop to reach the building
16. The overhead conductors between the utility electric supply system and the service point are known as _____.
 - service drop
 - conductor drop
 - service entrance
 - power conductor cables

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17. An uninterruptible power supply is designed to _____.
- providing more constant voltage and frequency supply to the load
 - reducing the effects of voltage and frequency variations
 - provide alternating current power to a load for some time period in the event of a power failure
 - none of the answers provided
18. Special conditions of use or other limitations and other pertinent information may be _____.
- marked on the equipment
 - included in the product instructions
 - included in the appropriate listing and labeling information
 - all of the answers provided
19. _____ shall be identified for the material of the conductor and shall be properly installed and used.
- Pressure terminals
 - Pressure splicing connectors
 - Soldering lugs
 - All of the answers provided
20. Conductors of dissimilar metals shall not _____ unless the device is identified for the purpose and conditions of use.
- be intermixed in a terminal
 - have splicing connectors where physical contact occurs between dissimilar conductors
 - both of the answers provided
 - none of the answers provided
21. Materials such as solder, fluxes, inhibitors, and compounds shall be of a type that will not adversely affect the _____.
- conductors
 - installation
 - equipment
 - all of the answers provided
22. The Arc-Flash Hazard Warning markings shall be clearly visible to qualified persons before examination, adjustment, servicing, or maintenance of the equipment.
- True
 - False
23. The following field marking information should be provided on service equipment.
- Maximum available fault current with the date the calculation was performed.
 - Field markings are not required.
 - "WARNING: HIGH VOLTAGE".
 - Field tested Line voltage.
24. If modifications are made, then the required field marking(s) in _____ shall be adjusted to reflect the new level of maximum available fault current.
- 110.24(A)
 - 210.24(A)
 - 310.24(A)
 - 410.24(A)
25. If modifications are made that effect the available fault current, modified field markings are not required when the installation is _____.
- in a private residence
 - in a public building
 - in an industrial setting where conditions of maintenance and supervision insure that only qualified persons service the equipment
 - field marking are always required
 - none of the above
26. The work space shall be clear and extend from the grade, floor, or platform to a height of _____ or the height of the equipment, whichever is greater.
- 0.5 m
 - 1.0 m
 - 1.5 m
 - 2.0 m
27. In existing dwelling units, service equipment or panelboards that do not exceed _____ amperes shall be permitted in spaces where the height of the working space is less than 2.0 m.
- 50
 - 100
 - 150
 - 200
28. Illumination shall be provided for all working spaces for _____, _____, _____, or _____ and shall not be controlled by automatic means only.
- jumper cables, ovens, electrical wire, outdoor lighting
 - light sources, dwelling units, motors, control boards
 - switch receptacles, dwelling units, water heaters, service equipment
 - service equipment, switchboards, panel boards, motor control centers installed indoors

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29. Electrical enclosures rated not over 600 volts shall be marked with an enclosure type as shown in Table _____.

- 110.28
- 316.1
- 431.0
- 435.5

30. Where an electrical vault is required or specified for conductors and equipment operating at over _____, nominal, the following shall apply. *What are the following?*

- 100 volts
- 200 volts
- 400 volts
- 600 volts

Quiz 2

1. Neutral conductors shall not be used for more than _____ unless specifically permitted elsewhere in this code.

- one branch circuit
- for more than one multiwire branch circuit
- for more than one set of ungrounded feeder conductors
- all of the answers provided

2. The means of identification shall be permitted to be by separate color coding, marking tape, tagging or other approved means.

- True
- False

3. The identification method utilized for conductors originating within each branch-circuit panelboard shall be _____ in a manner that is readily available.

- documented
- permanently posted at each branch-circuit panelboard
- both answers given are correct
- neither answer is correct

4. Garages, service bays, and similar areas where _____ are to be used, shall have a GFCI protector installed.

- electrical diagnostic equipment
- electrical hand tools
- portable lighting equipment
- all of the answers provided

5. Receptacles installed for countertop surfaces as specified in 210.52(C) shall not be considered as the receptacles required by 210.52(A).

- True

- False

6. Receptacle outlets shall be located on or above, but not more than _____ above, the countertop.

- 200 mm
- 10 inches
- 15 inches
- 20 inches

7. Foyers that are not part of a hallway in accordance with 210.52(H) and that have an area that is greater than _____ shall have a receptacle(s) located in each wall space 3 ft. or more in width and unbroken by doorways, floor-to-ceiling windows, or similar openings.

- 50 ft.
- 60 ft.
- 80 ft.
- 100 ft.

8. For track lighting in other than dwelling units, guest rooms, or guest suites of hotels or motels, an additional load of _____ shall be included for every 2 ft. of track lighting or fraction thereof.

- 50 volt-amperes
- 100 volt-amperes
- 150 volt-amperes
- 200 volt-amperes

9. Circuits exceeding _____ between conductors and not exceeding _____ to ground shall be permitted to supply luminaires for illumination of outdoor areas of industrial establishments, office buildings, schools, stores, and other commercial or public buildings.

- 100 volts, 200 volts
- 110 volts, 250 volts
- 120 volts, 277 volts
- 130 volts, 300 volts

10. Typically a conductor clearance above a roof is not less than 8 ft. However in a case where the voltage between conductors does not exceed _____ and the roof has a slope of 4in. in 12in. or greater, a reduction in clearance to _____ shall be permitted.

- 200 – 2 ft.
- 300 – 3 ft.
- 400 – 4 ft.
- 900 – 6 ft.

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11. The requirement for maintaining the vertical clearance of _____ from the edge of the roof shall not apply to the final conductor span where the service drop is attached to the side of a building.
 - 3 ft.
 - 4 ft.
 - 5 ft.
 - 8 ft.
12. If the number of service disconnect locations exceeds _____ for any given supply classification shall be clearly described using suitable graphics, text, or both on one or more plaques located near each service drop.
 - two
 - four
 - six
 - ten
13. A single-family dwelling unit and its accessory structures shall be permitted to have one _____.
 - set of overhead service conductors
 - a service lateral
 - both of the answers provided
 - all of the answers provided
14. For installations of equipment by the serving electric utility, a disconnecting means is not required if _____ and access can only be gained with the meter removed.
 - the supply is not installed as part of a meter socket
 - the supply is installed as part of a meter socket
 - the supply is installed but can't access the meter socket
 - none of the answers are provided
15. For either overhead or underground primary distribution systems on private property, the service disconnect shall _____ to be located in a location that is not readily accessible.
 - be permitted
 - not be permitted
 - not be adopted
 - none of the answers provided
16. If the tap conductors leave the enclosure or vault in which the tap is made, the ampacity of the tap conductors is not less than _____ of the rating of the overcurrent device protecting the feeder conductors.
 - one-tenth
 - one-fifth
 - one-third
17. Where an ac system operating at less than 1000 volts is grounded, the grounded conductors _____ be connected to each disconnecting means grounded conductor terminal or bus.
 - shall
 - shall NOT
 - is not required to
18. A _____ bonding jumper shall not be required to be larger than the derived ungrounded conductors.
 - supply-side
 - neutral
 - negative
 - positive
19. A supply-side bonding jumper of the wire type shall comply with 250.102(C), based on _____.
 - the shape of the derived ungrounded conductors
 - the weight of the derived ungrounded conductors
 - the height of the derived ungrounded conductors
 - the size of the derived ungrounded conductors
20. A metal underground water pipe in direct contact with the earth for _____ or more and electrically continuous to the points of connection of the grounding electrode conductor and the bonding conductor(s) or jumper(s), is permitted as a grounding electrode.
 - 1 ft.
 - 2 ft.
 - 5 ft.
 - 10 ft.
21. The metal frame of a structure can be permitted as a grounding electrode if _____ secure(s) the structural steel columns that are connected to a concrete-encased electrode that complies with 250.52(A) (3) and is located in the support footing or foundation.
 - hold-down bolts
 - metal screws
 - barbwire
 - doesn't need to be secured down

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22. A concrete-encased electrode is permitted if the bare copper conductor is not smaller than _____.
 - 2 AWG
 - 4 AWG
 - 6 AWG
 - 8 AWG
23. A supplemental electrode is NOT required if a single rod, pipe, or plate grounding electrode has a resistance to earth of _____ ohms or less.
 - 10
 - 15
 - 20
 - 25
24. Interior metal water piping located not more than _____ from the point of entrance to the building shall be permitted to be used as a conductor to interconnect electrodes that are part of the grounding electrode system.
 - 1 ft.
 - 2 ft.
 - 5 ft.
 - 10 ft.
25. _____ lock-nuts shall be permitted to be installed to make a mechanical connection of the raceway.
 - Standard
 - Stainless steel
 - Brass
 - All of the answers provided
26. Bonding jumper(s) for exposed structural metal that could become energized shall be sized in accordance with _____.
 - Table 403.1
 - Table 250.66
 - Table 625.5 (A)
 - None of the tables provided
- ditch
• ABS pipe
• approved raceway
• All of the answers provided
3. Conductors of the same circuit including the grounded conductor and grounding conductors shall be permitted to be installed in _____.
 - parallel in raceways
 - multi-conductor cables
 - direct-buried single conductor cables
 - all of the answers provided
4. Where independent support wires are connected in a non-fire rated assembly, the support wires need to be _____.
 - rewired
 - distinguishable by color or tagging
 - sorted by size
 - code is not adopted
5. Electrical installations in hollow spaces, vertical shafts, and ventilation or air handling ducts shall be made so that the potential spread of fire or products of combustion will not be substantially increased.
 - True
 - False
6. Non-shield, ozone-resistant insulated conductor with a maximum phase-to-phase voltage of 5000 volts shall be permitted in _____ cables in industrial establishments.
 - Type L
 - Type ML
 - Type AWG
 - Type MC
7. The table(s) to be used to determine the ampacities for conductors rated 0 to 2000 volts is (are) _____.
 - Allowable Ampacity Table 310.15(B)(16) through Table 310.15(B)(19)
 - Ampacity Table 310.15(B)(20)
 - Table 310.15(B)(21)
 - All of the answers provided
8. The wiring space of enclosures for switches feeding through other enclosures is permitted provided that the total of all conductors installed at any cross section of the wiring space should not exceed _____ of the cross-sectional area of that space.
 - 10 percent
 - 30 percent
 - 40 percent
 - 60 percent

Quiz 3

1. A cable, raceway, or box, installed in exposed or concealed locations under metal-corrugated sheet roof decking, shall be installed and supported so there is not less than _____ measured from the lowest surface of the roof decking to the top of the cable, raceway, or box.
 - 1 in.
 - 1-1/2 in.
 - 2 in.
 - 3 in.
2. An underground cable which is not MC that is installed under a building will need to be installed in a/an _____.

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9. The wiring space of enclosures for switches feeding through other enclosures is permitted provided that _____ is applied to the enclosure that identifies the closest disconnecting means for any feed through conductors.
 - a high voltage sticker
 - a warning label
 - a do not enter sign
 - all of the answers provided
10. Boxes used to support a luminaire or lamp holder outlets in a wall shall be _____ on the interior of the box to indicate the maximum weight of the luminaire that is permitted to be supported by the box in the wall if other than 50 lbs.
 - marked
 - replaced
 - rewired
 - code not adopted
11. Power distribution blocks shall be permitted in pull and junction boxes over _____ for connections of conductors.
 - 100 inches
 - 200 inches
 - 500 inches
 - 1000 inches
12. Only qualified persons are allowed to _____ type MV cables.
 - install
 - terminate
 - test
 - all of the answers provided
13. When Branch circuits or feeder are installed interior locations in thermal insulation, the maximum conductor temperature rating for de-rating correction purposes shall not exceed _____ rated conductor temperature.
 - 100°F
 - 120°F
 - 140°F
 - 160°F
14. FMC is not required to be securely fastened in place within 12 inches of a box when the FMC is fished between access points through concealed spaces in finished buildings or structures.
 - True
 - False
 - Not addressed in the code
15. A/an _____ can be installed if flexibility is necessary to connect equipment and minimize the transmission of vibration from equipment or to provide flexibility for equipment that requires movement after installation.
 - panel box
 - equipment grounding conductor
 - switchboard
 - underground conductor
16. Under floor Raceway is designed for the installation beneath or flush with the surface of a floor for the installation of cables and electrical conductors.
 - True
 - False
17. If the cable trays contain conductors rated over 600 volts, what permanent and legible warning note is going to be shown?
 - "WARNING – KEEP AWAY"
 - "WARNING – LOW VOLTAGE – KEEP AWAY"
 - "DANGER – LOW VOLTAGE – KEEP AWAY"
 - "DANGER – HIGH VOLTAGE – KEEP AWAY"
17. Overhead conductors above 600 volts are permitted _____.
 - Outdoors
 - Indoors
 - Outdoors and Indoors

Quiz 4

1. Where switches control lighting loads supplied by a grounding general purpose branch circuit, the grounded circuit conductor for the controlled lighting circuit shall be located at the _____.
 - panel location
 - conductor location
 - switch location
 - controller
2. A snap switch without a connection to an equipment grounding conductor shall be permitted for what purposes only?
 - exchange
 - replacement
 - maintenance
 - none of the answers provided
3. A snap switch wired under the provisions of this exception and located within _____ vertically of a grounded metal objects shall be provided with a faceplate of non-conducting non-combustible material with nonmetallic attachment screws.
 - 5 ft.
 - 6 ft.
 - 8 ft.

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- 10 ft.
4. If all of the conditions are met, then a snap switch with integral nonmetallic enclosure complying with 300.15(E) shall be permitted without a connection to an (a) _____.
 - equipment grounding conductor
 - outlet
 - panel board
 - switch board
 5. If a receptacle outlet is supplied by a branch circuit that requires arc-fault circuit interrupter protection, a replacement receptacle at this outlet shall follow:
 - A listed outlet branch circuit type arc-fault circuit-interrupter receptacle.
 - A receptacle protected by a listed outlet branch circuit type arc-fault circuit-interrupter type receptacle
 - A receptacle protected by a listed combination type arc-fault circuit interrupter type circuit breaker
 - Any one of the answers provided
 6. The arc-fault circuit-interrupter protection replacement shall become effective on _____.
 - January 1, 2012
 - January 1, 2013
 - January 1, 2014
 - January 1, 2015
 7. _____ receptacles shall be provided where replacements are made at receptacle outlets that are required to be protected elsewhere in this code.
 - Gas-resistant
 - Hazard-resistant
 - Weather-resistant
 - Fire-resistant
 8. In all areas specified in 210.52, all non-locking-type _____, 15- and 20-amperes receptacles shall be listed tamper-resistant receptacles.
 - 70-volt
 - 100-volt
 - 110-volt
 - 125-volt
 9. Receptacles in the following locations are not required to be _____.: (1) located more than 5-1/2 ft. above the floor, (2) are part of a luminaire or appliance, (3) are a single or duplex receptacle for two appliances, each being normal use not cord-and-plug, and (4) nongrounding receptacles for replacement.
 - tamper-resistant
 - child-resistant
 - weather-resistant
 - fire-resistant
 10. Generally speaking, all non-locking-type 125 volt, 15- and 20-amp receptacles shall be listed as tamper-resistant receptacles.
 - True
 - False
 11. In all childcare facilities, all non-locking-type, 125-volt, 15- and 20-ampere receptacles shall be listed tamper-resistant receptacles.
 - True
 - False
 12. A _____ containing an ungrounded electrical system as permitted in 250.21 shall be legibly and permanently field marked as follows: "Caution Ungrounded System Operating -- ____ Volts between Conductors".
 - switchboard
 - panelboard
 - both of the answers provided
 - neither of the answers provided
 13. All switchboard and panelboards supplied by a feeder in other than _____ family dwellings shall be marked to indicate the device or equipment where the power supply originates.
 - one- or two-
 - two- or three-
 - three- or five-
 - one- or four-
 14. Luminaires that do not comply with 410.64(A), (B), or (C), they cannot be used as a raceway for _____.
 - circuit conductors
 - panelboards
 - switchboards
 - power supplies
 15. Indoor locations other than dwellings and associated accessory structures shall have a disconnecting means _____ to each luminaire.
 - internal
 - external
 - both of the answers provided
 - neither of the answers provided

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16. For permanently connected motor-operated appliances with motors rated over _____ horsepower, the on and off switch needs to be within sight from the appliance.
- 1/2
 - 1/4
 - 1/6
 - 1/8
17. A heater containing a motor or motors rated over 1/8 horsepower will require _____.
- the on and off switch to be in sight from the motor controller(s) and the heater
 - the motor(s) of more than 1/8 hp and the heater to be provided with a single unit switch
 - any of the answers provided
 - neither of the answers provided
18. Ground-fault circuit-interrupter protection for personnel shall be provided for cables installed in electrically heated floors of _____.
- bathrooms
 - kitchens
 - hydro-massage bathtub locations
 - all of the answers provided
19. Ground fault protection of equipment shall be provided for fixed outdoor electric de-icing and snow-melting equipment.
- True
 - False
20. For valve actuator motor assemblies, the rated current shall be the nameplate full-load current, and _____ the ampacity of the conductors.
- this current shall be used to determine the maximum rating
 - setting of the motor branch-circuit short-circuit and ground-fault protective device
 - both of the answers provided
 - none of the answers provided
21. A motor short-circuit protector shall be permitted in lieu of devices listed in _____.
- Table 230.52
 - Table 330.52
 - Table 430.52
 - Table 530.52
22. A motor short-circuit protector is allowed to be the short-circuit protector if it a listed combination motor controller...., it will open the circuit at currents exceeding _____ of motor for other than Design B energy-efficient motors.
- 700 percent
 - 1100 percent
 - 1300 percent
 - 1700 percent
23. Two or more motors or one or more motors and other loads shall be permitted to be connected to the same branch circuit under conditions specified in 430.53(D) and in 430.53(A), (B), or (C).
- True
 - False
24. Several motors or loads on one branch will have each motor controller _____.
- as listed for group installation with a specified maximum rating of fuse, circuit breaker, or both
 - selected such that the ampere rating of the motor-branch short-circuit and ground-fault protective device does not exceed that permitted by 430.52 for that individual controller and corresponding motor load
 - all of the answers provided
 - neither of the answers provided
25. Transformers other than Class 2 or Class 3 shall have a disconnecting means located _____.
- in sight of the transformer
 - in a remote location if lockable and location marked on the transformer
 - both of the answers provided
 - neither of the answers provided

Quiz 5

1. Any finely divided solid material that is _____ or smaller in diameter and presents a fire or explosion hazard when dispersed and ignited in air.
- 1000 microns
 - 630 microns
 - 420 microns
 - 100 microns
2. Every unused opening will be closed with _____ and complying with 500.8(E) (1) or (E) (2).
- duct tape
 - metal tape
 - a piece of sheet metal screwed down to close up the opening
 - metal close-up plug

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3. Flexible metal conduit and liquid tight flexible metal conduit shall include an equipment bonding jumper of the wire type in compliance with _____.
 - 150.102
 - 250.102
 - 350.102
 - 450.102
4. The clearance between two terminals for connecting of field wiring of different intrinsically safe circuits shall be at least ____ inches.
 - 0.10
 - 0.15
 - 0.20
 - 0.25
5. Different intrinsically safe circuits shall be separated from each other by _____.
 - the conductors of each circuit are within a grounded metal shield
 - the conductors of each circuit have insulation with a minimum thickness of 0.25 mm
 - any of the answers provided
 - neither of the answers provided
6. Where flammable gases, combustible dusts, fibers are or may be present at the same time, the simultaneous presence shall be considered during the selection/ installation/ wiring methods of the electrical equipment.
 - True
 - False
 - Not addressed in the code
7. Each circuit leading to or through dispensing equipment shall be provided with a marked easy-access switch to disconnect all power to all _____.
 - conductors of the circuits
 - grounding conductors
 - both of the answers provided
 - neither of the answers provided
8. Each dispensing ____ shall be provided with a means to remove all external voltage sources, power, communications, data and video circuits.
 - device
 - piece of equipment
 - circuit
 - switch
9. The location of this means shall be permitted to be other than _____ or adjacent to the dispensing device.
 - outdoors
 - inside
 - not having a location
 - code was not adopted
10. Receptacles with insulated grounding terminals described in _____ shall not be permitted.
 - 150.146(D)
 - 250.146(D)
 - 350.146(D)
 - 450.146(D)
11. In a hospital, each patient bed location shall at least have _____ branch circuits.
 - one
 - two
 - three
 - four
12. The branch circuit serving patient bed locations shall be part of a multi-wire branch circuit.
 - True
 - False
13. An isolated conductor No. 1 shall be Orange with at least one distinctive colored stripe other than _____ along the entire length of the conductor.
 - white
 - green
 - gray
 - any of the answers provided
14. An isolated conductor No. 2 shall be Brown with at least one distinctive color stripe other than _____ along the entire length of the conductor.
 - white
 - green
 - gray
 - any of the answers provided
15. Branch circuit conductors shall be permitted within _____ identified in Table 400.4 for hard usage or extra-hard usage.
 - cable assemblies
 - multi-conductor cord
 - multi-conductor cable of a type
 - any of the answers provided
16. All receptacles shall be of the grounding type.
 - True
 - False
17. All branch circuits shall include a separate grounding conductor.
 - True
 - False

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18. A receptacle can be installed on any branch circuit that supplies temporary lighting on a construction site _____.
 - If the receptacle is Arc Fault protected
 - If the receptacle is GFCI protected
 - If the branch circuit is 20 amps.
 - Never
19. What requirements do you have to follow if temporary receptacle installations are used to supply temporary power to equipment used by personnel?
 - 390.6(A)(1) through (A)(3)
 - 490.6(A)(1) through (A)(3)
 - 590.6(A)(1) through (A)(3)
 - 690.6(A)(1) through (A)(3)
20. Receptacle outlets not part of permanent wiring of the building or structure but only used for personnel shall have a _____ for protection.
 - panel boxes
 - ground-fault circuit-interrupter
 - switch board
 - grounding wire
21. All 15- and 20-ampere, 125- and 250-volt receptacles used in a damp or wet location shall comply with _____.
 - 306.9(A) and (B)
 - 406.9(A) and (B)
 - 506.9(A) and (B)
 - code has been deleted
4. Branch circuits that supply neon tubing installations shall not be rated in excess of _____ amperes.
 - 10
 - 20
 - 30
 - 40
5. All other signs and outline lighting systems supplied but the branch circuit shall be rated not to exceed _____ amperes.
 - 10
 - 20
 - 30
 - 40
6. A feeder circuit or branch circuit supplying a/an _____ shall be controlled by an externally operable switch or circuit breaker that opens all ungrounded conductors and controls no other load.
 - sign
 - outline lighting system
 - skeleton tubing
 - any of the answers provided
7. The wiring methods and materials shall be installed in accordance with the _____ using any applicable wiring methods from Chapter 3 and the requirements from Class 2.
 - Manager's instructions
 - Owner's instructions
 - manufacturer's installation instructions
 - sales provider's instructions

Quiz 6

1. The primary focus of Article 600 is _____.
 - installation of conductors for signs
 - installation of signage equipment
 - field wiring for electric signs
 - field wiring for outline lighting
 - all of the answers provided
2. A complete LED sign illumination system consists of the following _____.
 - light-emitting diode (LED)
 - power supply
 - wire
 - connectors
 - all of the answers provided
3. What are the visibility requirements of a sign markings and listing labels?
 - Not required to be visible after installation.
 - Must be in a permanent location.
 - Must be visible during service.
 - Must be weatherproof if the sign is in a wet location.
8. LED sign illumination systems, secondary wiring connections for cables and conductors shall be made with listed insulating devices and be accessible after installation. When connections are made in a wall, the connections _____.
 - shall be in an enclosed box
 - shall be in an enclosed listed box
 - shall be made with listed insulating devices
 - shall accessible after installation
 - all of the answers provided except one

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9. In an elevator car, where an individual branch circuit supplies _____, the disconnecting means are required, but 620.53 shall be permitted to comply with 430.109(C).
- car lighting
 - a receptacle(s)
 - a ventilation motor not exceeding 2 hp
 - all of the answers provided
10. In an elevator car, the disconnecting means shall be listed and shall be capable of being _____ in the open position.
- closed
 - open
 - locked
 - watched over
11. A portable lock for an elevator car disconnecting means is allowed.
- True
 - False
12. A plug-in hybrid electric vehicle PHEV _____.
- is an electric vehicle
 - has the ability to store electrical energy
 - has a second source of motive power
 - is intended for on-road use
 - all of the answers provided
13. What is the maximum number of receptacles that can be installed at an electrified truck parking space?
- One
 - Two
 - Three
 - Four
14. Article 645 covers equipment, power-supply wiring, equipment interconnecting wiring, and grounding of information technology _____ in an information technology equipment room?
- equipment
 - systems
 - broadcasting devices
 - processing equipment
 - only 2 of the answers given are correct
15. A Critical Operations Data System is _____ operation for reasons of public safety, emergency management, national security, or business continuity.
- a continuous
 - a non-continuous
 - an intermittent
 - a standby
 - a back up
16. Information Technology Equipment _____.
- is rated at 600 volts or less
 - found in offices or other business establishment
 - found in ordinary locations
 - used for creation of data, voice, video and similar signal
 - all of the answers given are correct
17. An Information Technology Equipment Room is a room within the information technology equipment area that contains the information technology equipment.
- True
 - False
18. A remote disconnect control is an electric device and circuit that controls a disconnecting means through a relay or equipment device.
- True
 - False
19. A zone _____.
- is a physically identifiable area within an information technology equipment room
 - has its own dedicated power
 - has its own cooling system for the information technology equipment or systems
 - all of the answers provided
20. In an Information Technology Equipment Room a separate heating / ventilating / air-conditioning system is provided that is dedicated for use and is separated from other areas of occupancy. The HVAC system may serve other occupancies if _____.
- fire / smoke dampers are provided at the point of penetration of the room boundary
 - provided that the dampers are activated by smoke detectors
 - operation of the disconnecting means required by 645.10
 - all of the answers provided
21. Only electrical equipment and wiring associated with the operation of the information technology rooms is installed in the room.
- True
 - False

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22. Information technology equipment shall be permitted to be connected to a _____ by a power-supply cord.
- control board
 - power switch
 - branch circuit
 - power circuit
23. Separate information technology equipment units shall be permitted to be interconnected by means of listed cables and assemblies. The maximum _____ foot limitation of interconnecting cables _____ applies.
- 10, does not
 - 15, does not
 - 10, does
 - 15, does not
24. When multiple zones are created in an Information Technology equipment room, each zone shall have an approved means to confine fire or products of combustion to within the zone.
- True
 - False
25. _____ calculations for new or existing loads shall be permitted to be used if performed by qualified persons under engineering supervision.
- Feeder
 - Service load
 - Both of the answers provided
 - Neither of the answers provided
26. Industrial machinery shall not be installed where the available fault current exceeds its short-circuit current rating.
- True
 - False
 - Not covered in the code
 - Not enough information given
27. Outlets supplying pool pump motors connected to _____ shall be provided with ground-fault circuit-interrupter protection for personnel.
- single-phase 120V - 15-20 amp
 - single phase 240V - 15-20 amp
 - single phase 120V - 240V - 15-20 amp
 - none of the answers provided
- installation of a listed ground-fault circuit interrupter in the branch circuit
- a listed transformer
 - power supply
 - all of the answers provided
2. The equipotential bonding requirements for perimeter surfaces in 680.26(B) (2) shall not apply to a listed self-contained _____ installed above a finished floor.
- spa
 - hot tub
 - either of the answers provided
 - neither of the answers provided
3. Small conductive surfaces not likely to become energized, such as _____ not connected to metallic piping shall not be required to be bonded.
- air
 - water jets
 - drain fittings
 - all of the answers provided
4. The smallest size bonding wire connected both the metal piping system and the grounded metal parts in contact with the circulating water shall not smaller than _____ AWG.
- 2 AWG
 - 4 AWG
 - 6 AWG
 - 8 AWG
5. The _____ or larger solid copper bonding jumper shall be long enough to terminate on a replacement non-double-insulated pump motor.
- 2 AWG
 - 4 AWG
 - 6 AWG
 - 8 AWG
6. Photovoltaic system conductors shall be identified and grouped as required by _____.
- 590.4(B)(1) through (4)
 - 690.4(B)(1) through (4)
 - 790.4(B)(1) through (4)
 - 990.4(B)(1) through (4)
7. The equipment and systems in 690.4(A) through (D) and all associated wiring and interconnections shall be installed only by _____.
- the owner
 - sales provider
 - qualified persons
 - anyone who thinks they can do it

Quiz 7

1. Compliance for underwater luminaries installed in swimming pools and similar installations shall be obtained by the use of a listed underwater luminaire and by _____ for luminaires operating at low voltage contact limit.

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8. Photovoltaic source and PV output conductors, in and out of conduit, and inside of a building or structure, shall be routed along the building structure as _____.
 - beams
 - trusses
 - columns
 - all of the answers provided
9. Circuit breakers that are marked "line" and "load" shall not be back-fed.
 - True
 - False
10. The system shall disable or disconnect one of the following:
 - Inverters or charge controllers connected to the fault circuit when the fault is detected
 - System components within the arcing circuit
 - Both of the answers provided
 - neither of the answers provided
11. Means shall be provided to disconnect all current-carrying dc conductors of a photovoltaic system from all other conductors in a _____ or other structure.
 - boat
 - building
 - car
 - motor home
12. Where the disconnecting means are located more than _____ from the overcurrent device, a directory showing the location of each disconnect shall be installed at the overcurrent device location.
 - 100 inches
 - 10 ft.
 - 20 ft.
 - 6 feet
13. Non-load-break-rated disconnecting means shall be marked with _____.
 - "Do open under load"
 - "Do no touch under load"
 - "Do not open under load"
 - "Do not open – HIGH VOLTAGE"
14. Where dc photovoltaic source or output circuits from a building-integrated or other system are run inside a building or structure, they should be _____,
 - contained in metal raceways
 - type MC metal-clad cable that complies with 250.118(10)
 - metal enclosures from the point of penetration of the surface of the building or structure to the first readily accessible disconnecting means
 - all of the answers provided
15. Exposed non-current-carrying metal parts of _____ shall be grounded in accordance with 250.134 or 250.136(A), regardless of voltage.
 - PV module frames
 - electrical equipment
 - conductor enclosures
 - all of the answers provided
16. Metallic mounting structures, other than _____, used for grounding purposes shall be bonded to the grounding system.
 - welding
 - building steel
 - servicing structures
 - making metal items
17. What section does not apply to ac PV modules?
 - 690.16
 - 690.43
 - 690.47
 - 695.4
18. A small wind electric system(s) can supply _____.
 - a building
 - other structures
 - both of the answers provided
 - neither of the answers provided
19. A phase converters may not be used for _____?
 - elevator motors
 - water pumps
 - CNC machinery
 - fire pump service
20. A single disconnecting means and associated overcurrent protective device(s) shall be permitted to be installed between the fire pump power source(s) and _____.
 - a listed fire pump controller
 - a listed fire pump power transfer switch
 - a listed combination fire pump controller and power transfer switch
 - anyone of the answers provided

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21. For systems installed under the provisions of _____ only, additional disconnecting means and the associated overcurrent protective device(s) shall be permitted as required to comply with other provisions of this code.
 - 495.3(C)
 - 595.3(C)
 - 695.3(C)
 - 895.3(C)
22. Where an on-site standby _____ is used to supply a fire pump, an associated overcurrent protective device(s) shall be permitted.
 - motor
 - generator
 - heater
 - freezer
5. Emergency Wiring for a feeder-circuit wiring will be a listed electrical circuit-protective system with a minimum _____ fire rating.
 - 1 hour
 - 2 hours
 - 3 hours
 - 4 hours
6. Emergency Wiring for a feeder circuit wiring will be protected by a listed thermal barrier system for electrical system components with a minimum _____ fire rating.
 - 1 hour
 - 2 hours
 - 3 hours
 - 4 hours
7. A feeder circuit wiring will be protected by a listed fire-rated assembly that has a minimum fire rating of _____ and contains only emergency wiring circuits.
 - 1 hour
 - 2 hours
 - 3 hours
 - 4 hours

Quiz 8

1. An emergency system is _____.
 - legally required
 - classed as emergency by municipal, state, federal, or other codes
 - required by any governmental agency having jurisdiction
 - all of the answers provided
2. Emergency systems are intended to automatically supply _____, to designated areas and equipment if the normal supply fails.
 - illumination
 - power
 - both of the answers provided
 - neither of the answers provided
3. Relay, automatic load control is _____.
 - a device used to energize switched or normally-off lighting equipment from an emergency supply if the normal supply is lost
 - to de-energize or return the equipment to normal status when the normal supply is restored
 - both of the answers provided
 - neither of the answers provided
4. Emergency Wiring for a Feeder-circuit will be installed in spaces or areas that are fully protected by an approved automatic _____.
 - fire suppression system
 - water suppression system
 - heated suppression system
 - electrical suppression system
8. A feeder circuit wiring will be encased in a minimum of _____ concrete.
 - 1 inch
 - 2 inches of
 - 3 inches of
 - 5 inches of
9. On Legally required stand-by systems, a signal is used to indicate a ground fault in a solidly grounded wye, standby systems of more than _____ to ground and is legally required to ground a circuit-protective device rated 1000 amperes or more.
 - 50 volts
 - 100 volts
 - 150 volts
 - 200 volts
10. Instructions on the course of action to be taken in the event of an indicated ground fault shall be located at or near the _____.
 - Sensor location
 - Circuit breaker
 - Switch board
 - None of the answers provided
11. Installation of ___ or more electrical power production sources operating in parallel with a primary source(s) of electricity shall be installed only by qualified persons.
 - One
 - Two
 - Three

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- Four
12. An electric power production source shall be permitted to be connected to the supply side of the service disconnecting means as permitted in _____.
- 130.82(6)
 - 230.82(6)
 - 330.82(6)
 - 430.82(6)
13. The sum of all ratings of all _____ devices connected to power production sources shall not exceed the rating of the service.
- overcurrent
 - undercurrent
 - electrical
 - production
14. Critical Operation Power Systems: In a building where _____ are present with other types of power systems, the cover plates for the receptacles or the receptacles themselves shall have a distinctive color or marking so as to be readily identifiable.
- doctors
 - teachers
 - cops
 - people
15. All conductors or cables shall be installed in Critical Power Operation systems using any of the metal wiring methods permitted by _____ and in addition shall comply with 708.14(1) through (8), as applicable.
- 408.10(C)(1)
 - 508.10(C)(1)
 - 608.10(C)(1)
 - 708.10(C)(1)
16. All cables that are in Critical Power Operation systems for _____ shall be shielded twisted-pair cables.
- fire alarms
 - security
 - emergency communications
 - all of the answers provided
17. Shields cables that are in Critical Power Operation for _____ shall be continuous.
- Fire alarms
 - Security
 - Emergency communications
 - All of the answers provided
18. Optical fiber cables used in wiring of fire alarm, security, signal systems and emergency communications shall have be _____ cables.
- twisted pair
- shield pair
 - shield twisted pair
 - double shield twisted pair
19. Conductors for all control circuits rated above 50 volts shall be rated not less than _____.
- 200 volts
 - 400 volts
 - 600 volts
 - 800 volts
20. _____ shall use relays with contact ratings that exceed circuit voltage and current ratings in the controlled circuit.
- Communications
 - Fire alarms
 - Signaling systems
 - All of the answers provided
21. All cables for fire alarms, security, and signaling systems shall be riser-rated and shall be listed _____ electrical circuit protective systems.
- 1-hour
 - 2-hour
 - 3-hour
 - 4-hour
22. Control, monitoring and power wiring to HVAC Systems shall be a listed _____ electrical circuit protective system.
- 1-hour
 - 2-hour
 - 3-hour
 - 4-hour
23. Vertical installations of _____ installed in a raceway or conductors and cables of electrical circuit-protective systems shall be installed in accordance with 300.19.
- circuit integrity cables
 - conductors
 - both of the answers provided
 - neither of the answers provided
24. A bushing shall be installed where cables emerge from a raceway used for mechanical support or protection in accordance with 300.15(C).
- True
 - False

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25. Vertical installations of circuit integrity (CI) cables and conductors installed in a _____ shall be installed in accordance with 300.19.
- raceway or conductors installed in a raceway
 - cables of electrical circuit protective systems
 - both of the answers provided
 - neither of the answers provided
26. The branch circuit supplying the _____ shall supply no other loads.
- fire alarm equipment
 - house alarm equipment
 - store alarm equipment
 - this was not addressed in the code
27. The Fire Alarm Branch Circuit disconnecting means shall have red identification, shall be accessible only to qualified personnel, and shall be identified as _____.
- WARNING – HIGH VOLTAGE
 - FIRE ALARM – WARNING
 - FIRE ALARM CIRCUIT
 - KEEP OUT – FIRE ALARM
28. The _____ shall not damage the overcurrent protective devices or obscure the manufacturer's marking. This branch circuit shall not be supplied through ground-fault circuit interrupters or arc-fault circuit interrupters.
- White identification
 - Blue identification
 - Green identification
 - Red identification
29. A single channel or connected multiple channel, as well as associated fittings forming a structural system that is used to support, route and protect high densities of wires and cables, typically communications wires and optical fiber cables is known as a _____.
- cable routing assembly
 - protective raceway assemble
 - continuous cable barrier
 - cable protective assembly
30. A factory assembly of one or more optical fibers having an overall covering and containing non-current-carrying conductive member(s) such as Metallic strength member(s), Metallic vapor barrier(s), Metallic armory or metallic sheath is known as _____.
- conductive optical fiber cable
 - non-conductive optical fiber cable
 - continuous optical fiber cable
 - multi-level optical fiber cable
31. A factory assembly of one or more optical fibers having an overall covering and containing no electrically conductive materials is referred to as _____.
- conductive Optical Fiber Cable
 - continuous Optical Fiber cable
 - multi-level optical fiber cable
 - nonconductive Optical Fiber cable
32. An enclosed channel of nonmetallic materials designed for holding optical fiber cables in a plenum, riser and for general purpose applications is referred to as _____.
- fiber holding channel
 - optical raceway
 - fiber optical conduit path
 - optical fiber raceway
33. Installation of _____ shall comply with 770.113(A) through (J).
- Optical fiber cables
 - Raceways
 - Cable routing assemblies
 - All of the answers provided
34. _____ applications of listed optical fiber cables and raceways, and cables routing assembly types shall be as indicated in table 770.154(a).
- Permitted
 - Non-permitted
 - Both of the answers provided
 - None of the answers provided
35. Permitted and non-permitted applications of listed communications _____ shall be as indicated in table 800.154(a).
- wires
 - cables
 - raceways
 - all of the answers provided