

- 30) Ceiling fans over how many pounds shall be supported independently?
- A. 25 lbs.
 - B. 50 lbs.
 - C. 70 lbs.
 - D. 100 lbs.
- 31) How many # 14 THHN conductors can be installed in a piece of 1" EMT?
- A. 26
 - B. 10
 - C. 24
 - D. 35
- 32) What is the minimum length of a rod or pipe ground rod type of electrode?
- A. 5 feet
 - B. 6 feet
 - C. 10 feet
 - D. 8 feet
- 33) Rod, pipe, and plate electrodes shall be augmented by one additional electrode when a single electrode consisting of a rod, pipe, or plate does not have a resistance to ground of how many ohms or less?
- A. 12.5 ohms
 - B. 25 ohms
 - C. 30 ohms
 - D. 50 ohms
- 34) What is the minimum clearance over public streets for service drop conductors?
- A. 18'
 - B. 12'
 - C. 15'
 - D. 10'
- 35) How many times can a grounding electrode conductor be spliced with a nut and bolt?
- A. 1
 - B. 2
 - C. 0
 - D. 3
- 36) What is the general lighting and small appliance demand load of a 20-unit apartment building? Each unit is 920 sq. feet and has a 5kw range.
- A. 50,250 VA
 - B. 145,200 VA
 - C. 245,200 VA
 - D. 75,250 VA

- 37) What are the general lighting volt amps per square foot for an industrial loft?
- A. 3va
 - B. 2va
 - C. 1 VA
 - D. ¼ VA
- 38) What is the minimum required vertical clearance from ground for a 150-volt (maximum) overhead service drop conductor over a residential driveway?
- A. 10 feet
 - B. 12 feet
 - C. 15 feet
 - D. 18 feet
- 39) What is the minimum required vertical clearance from ground for an overhead service drop conductor rated over 300 volts run between two buildings over a residential property?
- A. 10 feet
 - B. 12 feet
 - C. 15 feet
 - D. 18 feet
- 40) What is the maximum number of disconnects for a single electrical service?
- A. 3
 - B. 1
 - C. 12
 - D. 6
- 41) When can one of six service disconnecting means be located remotely from the others?
- A. Standby services
 - B. Emergency systems
 - C. Fire pumps
 - D. All of the above
- 42) What is a metal wire way?
- A. A metal enclosure
 - B. A metal trough
 - C. A case or housing
 - D. All of the above
- 43) Which cable type is permitted to be installed in a messenger supported wiring system used over a residential zoned area?
- A. Metal-clad Cable
 - B. Armored Cable
 - C. Nonmetallic-Sheath
 - D. Medium Voltage C

- 44) What is the maximum number of overcurrent devices permitted in a single panelboard?
- A. 42
 - B. Not more than the
 - C. 36
 - D. 44
- 45) A stairway in a dwelling having how many stair rises or more shall have a wall switch at each floor level?
- A. 12
 - B. 6
 - C. 9
 - D. 10
- 46) What size main bonding jumper is required for a 1200 amp electrical service fed from a paralleled installation consisting of three 600-kcmil THWN conductors in parallel per phase?
- A. 250
 - B. 4/0
 - C. 2/0
 - D. 3/0
- 47) A ground rod shall be driven to a minimum depth of how many feet?
- A. 6'
 - B. 8'
 - C. 7'
 - D. 9'
- 48) Which of the following circuits in which any spark or thermal effect is incapable of causing ignition of a mixture of flammable or combustible material in the air under prescribed test conditions?
- A. Ignition proof
 - B. Nonincendive
 - C. Intrinsically safe
 - D. Incendive
- 49) What is the classification of a location in which ignitable concentrations of flammable gases or vapors can exist under normal operating conditions?
- A. Class 3 division 1
 - B. Class 1 division 2
 - C. Class 2 division 2
 - D. Class 1 division 1
- 50) How are switches and circuit breakers installed in a Class 1 Division 1 location?
- A. In a class 1 enclosure
 - B. In a general purpose enclosure
 - C. In a dust-ignitionproof enclosure
 - D. In a dusttight enclosure

- 51) How do you ground unpowered equipment and enclosures or equipment powered by coaxial cable?
- A. With an equipment grounding conductor
 - B. By connection to a CATV grounding electrode
 - C. No grounding is required
 - D. By connection to the metallic cable shield
- 52) What is the minimum size junction box required for the following conductors used for a fire alarm system installed in a raceway to the box? 2#18, 1#16, and 1#14.
- A. 9.25 cu"
 - B. 6.75 cu"
 - C. 7.00 cu"
 - D. None of the above
- 53) How many #12 THHN conductors can you fit in 3/8' flexible metal conduit with the fittings installed in the outside of the conduit?
- A. 2
 - B. 3
 - C. 4
 - D. 6
- 54) How is a grounded conductor larger than a #6 identified at the time of installation?
- A. By a continuous white or gray outer finish
 - B. By three continuous white stripes along its entire length on other than green insulation
 - C. By a distinctive white or gray marking at its terminations which encircle the conductor or insulation
 - D. All of the above
- 55) What is the maximum load permitted on a 15 amp cord and plug connected load on a 15 or 20 amp circuit?
- A. 12 amps
 - B. 24 amps
 - C. 16 amps
 - D. 15 amps
- 56) What is the service load calculation for nine 12kw furnaces?
- A. 108 kva
 - B. 135 kva
 - C. 100 kva
 - D. 120 kva
- 57) What is the branch circuit load calculation for a 12kw furnace?
- A. 12 kva
 - B. 15 kva
 - C. 10 kva
 - D. 24 kva
- 58) Receptacle outlets are to be installed on countertops above cabinets for each wall space greater than which of the following?
- A. 24"
 - B. 48"
 - C. 12"
 - D. 18"

- 59) What is the service demand load for eight 5kw ranges?
- A. 18 kva
 - B. 24 kva
 - C. 22 kva
 - D. 14.4 kva
- 60) What is the service demand load for a 5kw dryer?
- A. 4,250 VA
 - B. 5,000 VA
 - C. 6,250 VA
 - D. 5,500 VA
- 61) If an insulated grounding electrode conductor is sleeved through a piece of metal conduit, what must be done to the conduit?
- A. Since it is insulated, no further action is needed.
 - B. It is not allowed to be sleeved in a raceway.
 - C. It must be installed in rigid metal conduit.
 - D. It must be bonded at each end of the raceway to the grounding electrode conductor.
- 62) When can you run a grounding conductor for a surge arrestor through a metal enclosure?
- A. When bonded at both ends
 - B. By special permission
 - C. When it is insulated
 - D. A and C above
- 63) A motor with a service factor of 1.15 requires an overload protection device sized at what percent of motor nameplate current?
- A. 125%
 - B. 115%
 - C. 140%
 - D. 130%
- 64) All circuit conductors between the service equipment and the final branch circuit overcurrent device would be considered which of the following?
- A. A individual branch circuit
 - B. Service conductors
 - C. A branch circuit
 - D. A feeder
- 65) What are the general lighting volt amps per square foot for store lighting?
- A. 3 VA
 - B. 2 VA
 - C. 1 VA
 - D. ¼ VA

- 66) A dwelling lighting load is 5,500va, and the first 3,000va is calculated at 100%. What percentage is the remaining VA calculated at?
- A. 100%
 - B. 25%
 - C. 35%
 - D. 125%
- 67) How many feet must an underground water pipe be in contact with the earth in order to be able to use it as a grounding electrode?
- A. 10 feet
 - B. 8 feet
 - C. 20 feet
 - D. It cannot be used as electrode
- 68) Who can waive or permit alternative methods of certain code requirements?
- A. The fire Marshall
 - B. The authority having jurisdiction
 - C. The building inspector
 - D. All of the above
- 69) Branch-circuit conductors within 3 inches of a ballast shall have an insulation temperature rating of not lower than which of the following?
- A. 60 degrees Celsius
 - B. 75 degrees Celsius
 - C. 90 degrees Celsius
 - D. 194 degrees Celsius
- 70) Where can you use THHN insulation?
- A. Dry and damp locations
 - B. Dry and wet locations
 - C. Dry locations only
 - D. None of the above
- 71) When does the grounded conductor have to be white, gray, or have 3 continuous white stripes on it?
- A. Sizes smaller than #6 AWG
 - B. Larger than #6 AWG
 - C. Sizes 6 AWG or larger
 - D. Sizes 6 AWG or smaller

- 72) When underground service conductors emerge from grade and are continued up a pole, what is the minimum height of mechanical protection required?
- A. 6'
 - B. 10'
 - C. 12'
 - D. 8'
- 73) What is the smallest conductor size that can be paralleled disregarding exceptions?
- A. 1/0
 - B. #1
 - C. 2/0
 - D. #2
- 74) Where is a fire pump connected into a service?
- A. On the load side of the service
 - B. On an individual branch circuit
 - C. On the supply side of the service and not within the same enclosure as the service disconnect
 - D. On the supply side of the service and in the same enclosure as the service disconnect
- 75) A service feeds three 277-volt service disconnects and three 480-volt services disconnects through a trough. How many grounded conductors are required to be run with the phase conductors?
- A. 6
 - B. 1
 - C. 2
 - D. 4
- 76) What is the maximum angle a ground rod may be driven into the earth when a rock bottom has been encountered?
- A. 30 degrees
 - B. 90 degrees
 - C. 15 degrees
 - D. 45 degrees
- 77) What is the minimum wire size permitted to use for a ground ring encircling a building, which is in direct contact with the earth for at least 20'.
- A. #6
 - B. #8
 - C. #4
 - D. #2
- 78) When are double locknuts required to be used for proper bonding?
- A. For services
 - B. For circuits over 250 volts
 - C. For rigid metal conduit
 - D. In class 1 division 1 locations

- 79) What is the required thickness of a nonferrous plate electrode?
- A. 1/2"
 - B. 1/4"
 - C. 3/8"
 - D. 0.06"
- 80) An iron pipe used as a grounding electrode shall not be smaller than what trade size?
- A. 3/4"
 - B. 5/8"
 - C. 1/2"
 - D. 1/4"
- 81) In order to provide ready and safe access, in underground and sub-surface enclosures into which persons enter for installation and maintenance, all cables must be;
- A. Racked
 - B. Enclosed in raceways
 - C. Grouped together
 - D. Enclosed
- 82) The maximum current in amperes that a conductor can carry continuously under the conditions of use without exceeding its temperature rating would be defined as which of the following?
- A. Terminal rating
 - B. Ampacity
 - C. Continuous load
 - D. Interrupting
- 83) The circuit conductors between the final overcurrent device protecting the circuit and the outlet would be defined as which of the following?
- A. General purpose branch circuit
 - B. Feeder
 - C. Branch circuit
 - D. Individual branch circuit
- 84) A continuous load is one expected to run for how many hours?
- A. 6
 - B. 4
 - C. 2
 - D. 3
- 85) How does the NEC define exposed coaxial cable?
- A. Cable that is not terminated at equipment
 - B. One which if the support or insulation fails, contact with another circuit could result
 - C. The point where the cable emerges from an external wall
 - D. A factory assembly of one or more insulated conductors