Name: _____ Class: _____ Date: _____ ID: A

TXJ-1101 Simulated Electrical Exam Practice Questions 4-Hour Time Limit

Multiple Choice
Identify the choice that best completes the statement or answers the question.

B 1. Any one cord and plug connected utilization equipment connected to a 20 ampere branch circuit shall have a MAXIMUM rating of ___ amperes.
A. 10 B. 16 C. 20 D. 25
~~I 210.21(B)(2)~~ 210.23(A)(1) ~~(B)~~

A 2. The front edge of a switch box installed in a wall constructed of wood, shall be ___ from the surface of the wall.
bc combustible
A. flush with or projected out C. set back a maximum of 1/2 in.
B. set back a maximum of 1/4 in. D. set back a maximum of 3/8 in. 314.20

C 3. Underwater luminaires for swimming pools shall have GFCI protection if they operate at more than _____.
A. the low voltage current limit B. the low voltage voltage limit C. the low voltage contact limit D. the low voltage resistance limit 680.23(A)(3)

D 4. In dwelling units, at least one wall receptacle shall be installed in bathrooms; the receptacle shall be within a MINIMUM of ___ of the outside edge of each basin.
A. 12 in. B. 18 in. C. 24 in. D. 36 in. 210.52(D)
one recept between 2 basins ok, just w/in 36"

A 5. Which of the following statements about the protection of NM cable from physical damage is/are correct?
I. When run across the top of floor joists in an accessible attic, the cable shall be protected by guard strips.
II. When passing through a floor, the cable should be enclosed in Sch. 40 PVC extending at least 6 inches above the floor.
NM = romex 320.23(A)
A. I only B. II only C. both I and II D. neither I nor II 334.15(B) 334.23

C 6. In dwelling units, receptacle outlets required for the kitchen countertops, must be located above, but not more than ___ above the countertop.
A. 12 in. B. 18 in. C. 20 in. D. 24 in. 210.52(C)(5)

B 7. When installing a 20 amp, 120 volt, GFCI protected, below ground UF cable branch circuit that serves a yard light for a residence, what is the MINIMUM ground cover required for the cable?
A. 6 in. B. 12 in. C. 18 in. D. 24 in. T300.5 col 4

D 8. A 100 ampere feeder is planned to consist of AWG # 3 copper conductors in rigid nonmetallic conduit. The length of run is long and to prevent excessive voltage drop the circuit conductor size was increased to AWG # 2 copper. If a copper equipment grounding conductor is in the raceway, the minimum size permitted is ___ AWG.
A. 8 B. 2 C. 3 D. 6 E. 4 250.122(B)

C 9. Surface mounted incandescent luminaires (fixtures) are permitted to be installed above the door, or on the ceiling of a clothes closet, provided there is a MINIMUM clearance of ___ inches between the fixture and the nearest shelf.
A. 6 B. 8 C. 12 D. 18
410.16(C)(1)

(1:1 up size) if you up wire size on phase conductors, you up Eq. grounding cond. by same percentage

1. General
2. Wiring & Protection
3. Wiring methods
4. Equip General use

5. special occupancies
6. special Equip
7. special conditions

8. Comm
9. Tables

1. General
2. Wiring & Protection
3. Wiring Methods or Materials
4. Equip for general use

5. Special Occupancies
6. Special Equipment
7. Special conditions

8. communications Systems

9. Tables

Annex A - I

1. General
2. Wiring & Protection
3. Wiring Methods
4. Equip for general use

5. Special Occupancies
6. Special Equipment
7. Special conditions

8. comm

9. Tables

AA - AI - examples

Name: _____ ID: A

C 10. Where NM (romex) cable is run at angles with joists in unfinished basements, it shall be permissible to secure cables not smaller than ___ AWG, directly to the lower edges of the joists.
A. 10/2 B. 8/2 C. 6/2 D. 6/3 334.15(C)

A 11. In dwelling units, hallways of ___ feet or more in length shall have at least one receptacle outlet.
A. 10 B. 12 C. 15 D. 20 210.52(H) only (1) needed regardless of hall length

A 12. Ground fault circuit interrupter protection MUST be provided in residential kitchens for receptacles:
A. that serve the counter top surface.
B. that also serve the dining room.
C. that are on the same circuit as the outdoor receptacles.
D. that are beneath the counter top. 210.8(A)(6)

C 13. The MAXIMUM allowable length of flexible cord identified for use of connecting residential kitchen waste disposers is:
A. 18 inches C. 36 inches 422.16(B)(1)(2)
B. 24 inches D. 48 inches

B 14. Frames of electric clothes dryers are permitted to be grounded for new installations,
A. With sheet metal screws C. Connected to the frame of another appliance 250.140
B. Connected with a stranded copper grounding conductor (can be stranded, not req to be) D. To the grounded circuit conductor using bonding jumpers

A 15. CATV is defined as ___.
A. community antenna television C. coax television
B. community antenna transmitting vehicle D. cable transmitting vehicle 820.1

C 16. The MAXIMUM number of 10 AWG conductors permitted in a 4" x 1 1/4" octagon metal junction box is ___.
A. 2 B. 4 C. 5 D. 6 314.16(A)

C 17. A metal underground water pipe may serve as a grounding electrode if it is in direct contact with the earth for at least ___ ft. or more.
A. 6 B. 8 C. 10 D. 12 250.52(A)(1)

A 18. A single family dwelling has three ovens rated at 6, 8, and 3.5 KW; a cooktop rated at 6 KW and a broiler rated at 3.5 KW. The MINIMUM feeder demand will be ___.
A. 12.2 KW B. 18.6 KW C. 27.3 KW D. 30.1 KW T220.55 at note 3
27 kw x 45%

D 19. All receptacles located within ___ ft. of the inside walls of a hydromassage tub shall be protected by a GFCI.
A. 3 B. 4 C. 5 D. 6 680.71

C 20. A branch circuit supplying more than one electric baseboard heater in a residential occupancy shall be rated a MAXIMUM of ___.
A. 15 amperes B. 20 amperes C. 30 amperes D. 50 amperes 424.3(A)

C 21. Electrical junction boxes installed in walls and ceilings shall be ___.
A. visible C. accessible
B. readily accessible D. metal 314.29

D 22. Generally the ungrounded conductor of an electrical branch circuit is identified by ___ color.
A. white or gray B. green or bare C. gray only D. none of these 200.7 & 250.119

C 23. Switches and circuit breakers used as disconnecting means to appliances shall be:
A. factory installed only. C. indicating type.
B. of the fusible type. D. of the tripping type. 422.35

A 24. According to the NEC, which one of the following areas in a dwelling does NOT require a switched lighting outlet?
A. bedroom C. kitchen
B. bathroom D. detached garage with power 210.70(A)(1)+(2)

A 25. For dwelling units, a branch circuit supplying ___ receptacle outlets are permitted to also supply receptacles in an attached garage.
A. outdoor C. laundry room
B. bathroom D. kitchen small appliance 210.52(G)(2) & 210.11(C)(2)+(3)

C 26. For a one-family dwelling, the service disconnecting means shall have a rating of not less than ___ amperes when served with a 120/240 volt, single phase service.
A. 30 B. 60 C. 100 D. 200 230.79(C)

B 27. When a circuit breaker panel is installed in a house, if the breakers are used as switches, the highest switch in the panel shall be what MAXIMUM distance from the floor?
A. 84 in. B. 79 in. C. 60 in. D. 48 in. 404.8(A)
6ft 7" high

B 28. In a dwelling unit that has more than one bathroom, the receptacle outlets shall be supplied by at least:
A. one 15 amp branch circuit which supplies no other outlets.
B. one 20 amp branch circuit which supplies no other outlets.
C. one 15 amp branch circuit which is also permitted to serve bathroom lighting.
D. one 20 amp branch circuit which is also permitted to serve bathroom lighting. 210.11(C)(3)
have to have ded ckts to acct for fans in bath's

B 29. A GFCI protected receptacle that provides power to a pool recirculating pump motor, shall be permitted not less than ___ feet from the inside wall of the swimming pool.
A. 5 B. 6 C. 12 D. 15 680.22(A)(1)

C 30. When doing residential service and feeder calculations, clothes dryers are to be calculated at a MINIMUM of ___ watts (VA), or the nameplate rating, whichever is larger.
A. 3000 B. 4500 C. 5000 D. 6000 220.54
or nameplate, whichever is greater

B 31. When installing EMT, how often shall the run of tubing be securely fastened?
A. 6 ft. B. 10 ft. C. 15 ft. D. 20 ft. 358.30(A)

D 32. A feeder supplying a 5 KW wall mounted oven and a 7 KW counter mounted cooktop in a residence, shall have a MINIMUM ampacity of ___.
A. 12 KW B. 9.5 KW C. 8 KW D. 7.8 KW

5+7 = 12 x 65%

T. 220.55 & note 3 col B.

C 33. Service conductors are not permitted to be connected to the terminals of the service disconnecting means by, _____.

A. Clamps
B. Pressure connectors
C. Soldering only
D. Other approved methods

230.81

C 34. When the heating, air-conditioning or refrigeration equipment is installed on the roof of an apartment complex, a 15 or 20 amp receptacle:

A. is not required by the Code.
B. may be connected to the line side of the equipment disconnecting means provided that the receptacle is of the GFCI type.
C. shall be located on the same level and within 25 ft. of the heating, air-conditioning, or refrigeration equipment.
D. installed on the roof where the equipment is located provided that the receptacle is not more than 75 ft. from where the equipment is located.

210.63

D 35. Service disconnecting means may be installed in all of the following locations except,

A. Outside
B. An exit foyer
C. Transformer vaults
D. Bathrooms

230.70 (A)(2)

B 36. It shall be permissible to apply a demand factor of ___ % to the nameplate-rating load of 4 or more fastened in place water heaters in a multi-family dwelling.

A. 50 B. 75 C. 80 D. 90

220.53

D 37. A 175 KVA, single phase transformer having a secondary voltage of 120/240 has been installed at a multi-family dwelling. The current available at the secondary is ___.

A. 329 amps B. 421 amps C. 625 amps D. 729 amps

$\frac{175,000VA}{240V}$ ohms law

A 38. What is the MAXIMUM allowable voltage between conductors on a branch circuit supplying lighting fixtures in a residence?

A. 120 volts B. 150 volts C. 240 volts D. 250 volts

210.6 (A)(1)

D 39. Type XHHW insulated conductors may be used in:

A. dry locations only.
B. wet locations only.
C. dry or damp locations only.
D. dry, damp, or wet locations.

T310.104 A
310.10 (B) & (C)

A 40. When calculating the total load on a dwelling, how many VA per sq. ft. must be included for the general purpose receptacles?

A. 0 B. 1 C. 2 D. 3

220.14 (J)

D 41. The grounding contacts of branch circuit receptacles shall be grounded by connection to the ___ conductor.

A. bonding
B. neutral
C. grounded
D. equipment grounding

406.4 (C)

C 42. All conductors of a multiwire branch circuit shall originate from the same ___.

A. feeder B. service C. panelboard D. receptacle

210.4 (A)

A 43. The ampacity of UF cable shall be that of ___ deg. C conductors.

A. 60 B. 75 C. 85 D. 90

340.80

2 yokes

(13)

12/2 – 2
12/2 – 2
14/2 – 2
14/2 – 2
grnd – 1
sp sw – 2
4 clamps – 2
sp sw – 2

4.5
4.5
4.0
4.0
2.25
4.5
2.25
4.5

30.5

Name: _____ ID: A

use table 2

A 44. The MINIMUM size copper equipment grounding conductor required to equipment serviced by a 40 amp branch circuit is ___.
A. 10 AWG B. 8 AWG C. 12 AWG D. 14 AWG T250.122

B 45. When two switches are mounted on the same strap, the number of conductors allowed in the box shall be reduced by a MINIMUM of ___ conductors.
A. 1 B. 2 C. 3 D. 4 ~~T250~~ 314.16(B)(4)

doogle, 1 strap, still 2 allowances, unless 2gang ... then 4 allowances

B 46. A 240 volt, 20 amp circuit may supply ___ linear feet of electric baseboard heat. Baseboard heaters being used are rated 240 volts, 250 watts per linear foot.
A. 12 B. 15 C. 16 D. 18 424.3(B) 80%

B 47. The NEC requires recessed portions of fixture enclosures that are not identified for contact with insulation, to be spaced from combustible material a MINIMUM of:
A. 3/8 in. B. 1/2 in. C. 3/4 in. D. 1 in. 410.116(A)(1)

wood stud

C 48. What is the MAXIMUM time period allowed for outdoor Christmas decoration lighting for residences?
A. 30 days C. 90 days
B. 60 days D. 30 days after Christmas. 590.3(B)

C 49. Determine the MINIMUM number of 15 amp, 120 volt, lighting circuits required for a 2600 sq. ft. dwelling.
A. 3 B. 4 C. 5 D. 6 T220.12 & 220.11(A)

2600 x 3 = 7800 / 1800 = 4.3

B 50. Metallic surface type cabinets for electrical equipment in damp or wet locations, shall be mounted so there is at least ___ air space between the cabinet and the wall or other supporting surface.
A. 1/8 in. B. 1/4 in. C. 3/8 in. D. 1/2 in. 312.2

C 51. The MINIMUM number of 120 volt, 15 amp, lighting branch circuits required for a dwelling that has 70 x 30 ft. of livable space is ___.
A. 2 B. 3 C. 4 D. 5 T220.12

B 52. A two gang box contains two #12/2 w/ground NM cables connected to a duplex receptacle and two #14/2 w/ground NM cables connected to a single pole switch. The two gang box also contains four clamps. What MINIMUM cubic inch volume does the box require?
A. 28 cu. in. B. 30 cu. in. C. 34 cu. in. D. 36 cu. in. T314.16(B)

B 53. A fixture stud in a box is considered the equivalent of how many conductors?
A. 0 B. 1 C. 2 D. 3 314.16(B)(3)

D 54. The mobile home service equipment:
I. is permitted to be installed on the exterior wall of the mobile home.
II. is required to be not more than 30 feet from the exterior wall of the mobile home it serves.
A. either I or II B. I only C. neither I nor II D. II only 550.32(A)

A 55. The grounded service entrance conductor shall not be smaller than the required:
A. grounding electrode conductor. C. ungrounded service entrance conductor.
B. largest phase conductor. D. largest feeder conductor.
250.24(C)(1)

5A = W
120A = 600

___ 56. In regard to solar photovoltaic (PV) systems, in the event of a ground-fault, the inverter or charge controller fed by the faulted circuit shall _____.

A. sound an alarm
B. sound an alarm and energize a strobe light
C. automatically cease to supply power to output circuits
D. only by manual operation cease to supply power to output circuits

690.5(A)

B 57. A 120 volt receptacle is installed on a dwelling unit kitchen island countertop that is 8 feet from the kitchen sink. Which one of the following statements, if any, is correct?

A. GFCI protection is not required because the receptacle is not within 6 feet of the sink.
B. GFCI protection is required for all countertop kitchen receptacles.
C. GFCI protection is not required on receptacles installed on kitchen islands.
D. None of the above.

210.8(A)(6)

B 58. What is the MINIMUM size copper SE cable with type THHW conductors that may be used for a 150 amp, 120/240 volt, single phase, residential service?

A. 1/0 AWG B. 1 AWG C. 2 AWG D. 3 AWG

T 310.15(B)(7)

B 59. The ungrounded service entrance conductors for a residence is 3/0 copper conductors. A copper grounding electrode conductor attached to a water pipe electrode shall not be smaller than ___.

A. 2 AWG B. 4 AWG C. 6 AWG D. 8 AWG

T 250.66

D 60. When calculating the total load on a dwelling, what is the MINIMUM VA that must be added for the two required small appliance circuits?

A. 1200 VA B. 1500 VA C. 2400 VA D. 3000 VA

220.52(A)

D 61. The demand factor for six residential clothes dryers in a multi-family dwelling unit is:

A. 70% B. 80% C. 60% D. 75%

T 220.54

A 62. If the service disconnecting means is located inside a residence, it shall be located ___ the point of entrance of the service conductors.

A. at a point nearest
B. a maximum of 6 ft. from
C. a maximum of 10 ft. from
D. a maximum of 25 ft. from

230.70(A)(1)

D 63. Which of the following conductors need overcurrent protection on a residential electric service?

A. grounding conductor
B. bonding conductor
C. identified conductors
D. ungrounded conductors

230.90

C 64. A 120 volt branch circuit has only six 100 watt, 120 volt incandescent lighting fixtures connected to it. What will be the total measured current in the home run supplying this load?

A. 30 amps B. 20 amps C. 5 amps D. 1 amp

ohms law
6 x 100 = 600 / 120 = 5

A 65. A receptacle installed for a washing machine in the laundry room of a dwelling must be installed within ___ ft. of the intended location of the appliance.

A. 6 B. 4 C. 10 D. 3

210.50 (C)

C 66. The rating of any single cord-and plug-connected appliance used on a 30 amp branch circuit shall NOT exceed ___ amperes.

A. 30 B. 27 C. 24 D. 16

210.23(B)

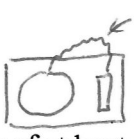
30 x 80% = 24

$VA = W$

$\frac{240\ A}{240} = \frac{4500}{240}$

18.75

Name: _____ ID: A



A 67. Tap conductors for recessed luminaires (fixtures) shall be in a suitable raceway of at least ___ in length.
(A) 18 in. B. 2 ft. C. 4 ft. D. 6 ft. 410.117(C)

A 68. Ceiling-Suspended (paddle) fans that weigh ___ lbs. or less are allowed to be directly mounted to a ceiling box that is identified for use of supporting ceiling-suspended fans but are not marked with a maximum weight. 314.27(C)
(A) 35 B. 50 C. 6 D. 70 ← if listed can be 70lbs 422.18

C 69. When installing NM cable through bored holes in wooden studs, the holes shall be bored so that the edge of the hole is not less than ___ inches from the edge, or the cable shall be protected by a steel plate at least 1/16 in. thick.
A. 3/4 B. 1 anytime see bored holes, 1¼" (C) 1 1/4 D. 1 1/2 300.4(A)(1)

A 70. The ampacity of a conductor is defined by the NEC to be the current, in amps, a conductor can carry continuously under the conditions of use without exceeding:
(A) its temperature rating. C. its melting point.
B. the allowable voltage drop limitations. D. its rated voltage. Art. 100 def.

A 71. What is the smallest size equipment grounding conductor for swimming pool branch circuits connecting wet-niche lighting fixtures, allowed by the NEC?
(A) 12AWG C. 8AWG 680.23(F)(2)
B. 10AWG D. 6AWG

B 72. A connection to a driven or buried grounding electrode shall:
A. be accessible. C. not permitted to be buried.
(B) not be required to be accessible. D. be visible. 250.68(A) except 1
acorns required to be in earth! all 8 ft

A 73. Receptacles in a kitchen of a residence that are to serve counter top surfaces, shall be installed that no point along the wall line is more than ___ inches, measured horizontally from a receptacle outlet in that space.
(A) 24 B. 18 C. 36 D. 48 210.52(C)(1)
same idea as vaccum cleaner

A 74. When using the optional calculation method for a dwelling unit service, all "other loads" above the initial 10 KW are to be listed at:
(A) 40% B. 50% C. 60% D. 75% 220.82(B)

D 75. The ampacity of the branch circuit conductors to a residential central heating electric furnace shall NOT be less than ___ % of the furnace load.
A. 80 B. 100 C. 115 (D) 125 424.3(B)

C 76. Given: You have a 40 gallon electric water heater that has a nameplate rating of 4500 watts @ 240 volts. What is the MAXIMUM size standard overcurrent protection device the NEC allows to protect this water heater?
A. 20 amperes B. 25 amperes (C) 30 amperes D. 35 amperes 422.11(E)(3) 240.6(A)
4500/240 = 18.75 × 150% = 28 roll up to 30

D 77. Outdoor receptacles at a dwelling unit are not required to be GFCI protected if they are supplied from a dedicated branch circuit installed:
A. in a weatherproof box.
B. at a second floor level.
C. at least 6 1/2 ft. above grade level.
(D) for electric snow melting, de-icing, or pipeline and vessel heating equipment. 210.8(A)(3) exception

Name: _____ ID: A

D 78. What is the MAXIMUM allowable cord length for a cord and plug connected dishwasher installed under a counter in a dwelling unit?

A. 1 1/2 ft. B. 2 ft. C. 3 ft. D. 4 ft. 422.16(B)(2)(2)

C 79. Given: You have a 20 amp rated residential branch circuit; receptacles (multiple) on this circuit are to be rated ___.

I. 15 amperes
II. 20 amperes

A. I only B. II only C. either I or II D. neither I nor II T210.21(B)(3)

B 80. Three-way and four-way switches shall be so wired that all switching is done: if single ☐, has to match OCPD / 15 or 20 duplex can be on 15 or 20 brkr

A. only in the grounded circuit conductor.
B. only in the ungrounded circuit conductor.
C. either in the grounded or ungrounded circuit conductor.
D. only in the white circuit conductor. 404.2(A)

Name: _____ Class: _____ Date: _____ ID: A

TXJ-1102 Simulated Electrical Exam Practice Questions 4-Hour Time Limit

Multiple Choice

Identify the choice that best completes the statement or answers the question.

A 1. Fastened in place utilization equipment that is connected to a branch circuit with other loads shall not exceed ___ percent of the branch circuit rating.

(A) 50 B. 75 C. 80 D. 100 210.23 (A)(2)

A 2. In a dwelling unit, how many bathroom receptacles are permitted to be installed from the garage receptacle GFCI?

over 50 % of rating, has to be dedicated.

(A) 0 C. 2 210.11(c)(3)

B. 1 D. unlimited

B 3. How many 12/2 AWG with ground, type NM cables are permitted to be installed in an outlet box that is 18 cubic inches and has a duplex receptacle installed in the box?

A. 1 (B) 2 C. 3 D. 4 T314.16(B)

B 4. The point of attachment of a service drop to a residence where the voltage is 120 volts to ground is a MINIMUM of ___ feet above grade.

A. 8 ft. (B) 10 ft. C. 12 ft. D. 15 ft. 230.26

D 5. Grounding electrodes made of pipe or conduit shall not be smaller than ___ trade size.

A. 1/2 in. (B) 3/4 in. C. 1 in. D. 1 1/4 in. 250.52(A)(5)(a)

D 6. In a Class II, Div. 1 hazardous location, which of the following wiring methods would NOT be approved?

A. flexible connections C. dusttight boxes

B. threaded boxes (D) EMT 502.10(A)

A 7. The MINIMUM distance from wall switches to the inside walls of an indoor installed spa or hot tub shall be:

(A) 5 ft. B. 10 ft. C. 15 ft. D. 18 ft.

680.43(c)

C 8. It is permitted to connect grounding conductors and bonding jumpers by _____.

A. sheet metal screws (C) exothermic welding

B. solder D. pressure connectors 250.8

A 9. When permitted to use nonmetallic sheath cable in concealed stud space that is used for environmental air-handling purposes the cable must:

(A) Run perpendicular to the stud space C. Not be used under no condition 300.22(c) exception

B. Be marked Type NM-B D. Be size 12/2 or larger

Name: _____ ID: A

C 10. The MAXIMUM size of electrical metallic tubing that can be installed to enclose service entrance conductors is:
A. 3 in. B. 3 1/2 in. C. 4 in. D. 4 in. 358.20 (B)

A 11. If a single rod, pipe, or plate grounding electrode has a resistance to earth of _____ ohms or less, the supplemental electrode shall not be required.
A. 25 B. 80 C. 100 D. 125 250.53 exception

C 12. For the purpose of determining box fill, #12 THWN copper wire is to be calculated at ___ cu. in.
A. 1.75 B. 2.00 C. 2.25 D. 2.50 T314.16(B)

D 13. A 120 volt receptacle located within ___ ft. of the inside walls of a swimming pool must be GFCI protected.
A. 10 B. 15 C. 20 D. all of these 680.22(A)(4)

C 14. A device box contains four 10 AWG conductors and four 12 AWG conductors. Assuming each conductor carries current, for the purposes of determining box fill, these conductors are equivalent to ___ cubic inches.
A. 17 B. 18 C. 19 D. 20 314.16(B)(1) T314.16(B)

D 15. When installing rigid metal conduit, the NEC requires the MAXIMUM distance between supports on 2 in. conduit, with threaded fittings, to be:
A. 3 ft. B. 5 ft. C. 10 ft. D. 16 ft. 344.30(B)(2) T344.30(B)(2)
have to have 5 threads fully engage

C 16. What is the smallest size lighting fixture wire permitted by the NEC?
A. 14 AWG B. 16 AWG C. 18 AWG D. 20 AWG 402.6

B 17. The ampacity of branch circuit conductors and the rating or setting of overcurrent protective devices supplying fixed outdoor electric de-icing equipment shall not be less than ___ percent of the full load current of the equipment.
A. 100 B. 125 C. 80 D. 150 424

C 18. Determine the MINIMUM ampacity of conductors serving a continuous duty, Design B, 3-phase, 208 volt, 10 HP, induction type motor.
A. 30.8 amps B. 46.2 amps C. 38.5 amps D. 32.2 amps 430.22 T430.250
30.8A x 125 %

C 19. Flexible cord is considered as protected by a 20 amp branch circuit breaker if it is _____ and approved for use with a specific listed appliance.
A. limited to 6ft in length C. 18AWG or larger 400.13
B. 20AWG or larger D. 16AWG or larger 240.5(B)(2)

A 20. A metal box or terminal fitting having separately bushed holes for each conductor, shall be used whenever change is made from conduit to ___.
A. knob and tube wiring C. type AC cable
B. non-metallic sheathed cable D. type MC cable 300.16(A)

A 21. Threadless couplings for rigid metal conduit installed in wet locations shall be:
A. listed for use in wet locations. C. steel type.
B. set screw type. D. enclosed in concrete.

344.42(A)

D 22. The grounded conductor of a branch circuit that is smaller than 6 AWG, shall be:
I. without splices.
II. white or gray color.
A. I only B. neither I nor II C. both I & II D. II only

200.6(A)

can't use marking tape on #8 or less, has to be color white

D 23. Which of the following statements, if any, are true regarding the overcurrent protection of busways?
I. A busway rated for 1800 amps is permitted to be protected with a 2000 amp breaker.
II. A busway rated for 1400 amps is permitted to be protected with a 1600 amp breaker.
A. I only B. both I and II C. II only D. neither I nor II

368.17(A)

can't roll up above 800 A

240.4(C)
240.6(A)

A 24. When bending type NM cable, the tightest bend permitted by the NEC, has a radius of:
A. 5 times the diameter of the cable or more. C. 5 times the radius of the cable or more.
B. 5 times the diameter of the cable or less. D. 5 times the radius of the cable or less.

334.24

can't 90° romex

C 25. Which of the following wiring methods is permitted by the NEC for the service entrance conductors for residences?
A. non-metallic sheathed cable C. PVC
B. UF cable D. AC cable

230.43(11)

C 26. Panelboards equipped with snap switches rated at 30 amperes or less shall have overcurrent protection rated at NOT more than ___ amperes.
A. 100 B. 150 C. 200 D. 225

408.36(A)

B 27. What is the MINIMUM burial depth of intermediate metal conduit, containing conductors 600 volts or less, under a residential gravel driveway?
A. 12 in. B. 18 in. C. 24 in. D. 30 in.

T300.5 col 2

B 28. A branch circuit is supplying a single hermetic refrigerant motor-compressor for an air conditioning unit. The hermetic refrigerant motor-compressor rated-load current is 18 amperes. If a 30 ampere fuse will not start the motor-compressor, the MAXIMUM rating of the branch circuit, short circuit and ground-fault protective device may be increased to:
A. 35 amps B. 40 amps C. 45 amps D. 50 amps

440.22(A)
240.6(A)

18 × 225% = 40.5 A

A 29. Which of the following listed overcurrent protection devices is NOT a standard ampere rating?
A. 75 B. 110 C. 175 D. 225

240.6(A)

C 30. How many overcurrent devices can be installed in a panelboard?
A. 42 B. no limit C. not more than it's listing D. no limit if it is a power panelboard

408.54

D 31. A luminaire (lighting fixture) shall be supported independently of the outlet box when it weighs more than ___ pounds unless the outlet box is listed for the weight to be supported.
A. 6 B. 25 C. 35 (D.) 50
314.27(A)(2)
30 lb fans, 50 light fixtures

B 32. A switchboard is fed from a 3 phase, 4 wire delta-connected system; the ___ phase shall be the phase having the higher voltage to ground.
A. A (B.) B C. C D. any
408.3(E)
B phase, hi leg

A 33. When installing nonpower-limited fire protection signaling circuits, what is the MINIMUM size conductor that requires overcurrent protection?
(A.) 18 AWG B. 16 AWG C. 12 AWG D. 14 AWG
760.43

C 34. When installing an overhead service using a conduit service mast for the support of service-drop conductors, the mast shall be of adequate strength or be:
A. a minimum of 2 inches in diameter. (C.) supported by braces or guys.
B. a minimum of 3 inches in diameter. D. less than 4 ft. in height.
230.28

B 35. Concealed knob and tube wiring shall be permitted to be used only for:
A. houses. C. accessible installations.
(B.) extensions of existing installations. D. temporary wiring.
394.10(1)

A 36. A 3" x 2" x 1 1/2" metal device box may contain only ___ 12 AWG conductors.
(A.) 3 B. 4 C. 5 D. 6
T314.16(A)

C 37. According to the NEC, the MINIMUM allowable headroom for work space about service equipment, switchboards, and motor control centers in a commercial building is:
A. 6 ft. B. 7 ft. (C.) 6 1/2 ft. D. 5 1/2 ft.
110.26(A)(3)
6 1/2 ft or height of equipment

D 38. Disregarding exceptions, when installing an equipment grounding conductor in a conduit serving a swimming pool light, it shall be ___.
A. solid C. a minimum of 10 AWG
B. bare (D.) insulated
680.23(F)(2)

B 39. You have installed a 2-1/4" x 4" box with a capacity of 18 cubic inches and without cable clamps. What is the MAXIMUM distance a support for nonmetallic sheath cable is permitted to be located from this nonmetallic device box?
A. 6 inches C. 12 inches
(B.) 8 inches D. 36 inches
314.17(C) exception

C 40. When calculating the load for show window lighting, ___ shall be included for this load.
A. 120 VA per outlet (C.) 200 VA per linear ft.
B. 280 VA per outlet D. 180 VA per linear ft.
220.14(G)

35 ft
x 200 VA
7000 VA
x 125 %

Name: _____ ID: A

B 41. A motor controller enclosure which is subject to occasional prolonged submersion shall be type ___.
A. 3S B. 6P C. 12 D. 4X

C 42. The general lighting load for residential services is calculated at ___ VA per sq. ft.
A. 1 B. 2 C. 3 D. 4

B 43. What is the MINIMUM sill height of a transformer vault doorway?
A. 3 in. B. 4 in. C. 6 in. D. 8 in.

D 44. What is the MAXIMUM overcurrent protection allowed for the protection of resistance type electric space heating equipment?
A. 30 amperes B. 40 amperes C. 50 amperes D. 60 amperes

A 45. The MAXIMUM distance between supports for 1 in. rigid polyvinyl chloride conduit (PVC) shall not exceed ___ feet.
A. 3 B. 4 C. 6 D. 10

C 46. What is the MAXIMUM overcurrent protection rating allowed on infrared heating lamps used on commercial or industrial applications?
A. 30 amps B. 40 amps C. 50 amps D. 60 amps

C 47. A type of conductor insulation approved for use in both dry and wet locations is:
A. TFE B. THHN C. THWN D. SA

A 48. Given: You have a 2 in. rigid metal conduit that contain conductors of THWN insulation. What is the MINIMUM field bend radius of the conduit? Assume a single operation (one shot) bending machine is used.
A. 9 1/2 in. B. 12 in. C. 15 in. D. 19 in.

D 49. Plug fuses of 15 ampere and lower rating, shall be identified by a:
A. clear window or cap.
B. white window or cap.
C. octagon configuration window or cap.
D. hexagon configuration window or cap.

A 50. Disregarding all exceptions, which of the following statements about MI cable is correct?
A. It may be used in any hazardous location.
B. It shall not be used where exposed to oil and gasoline.
C. It shall be securely supported at intervals not exceeding 10 feet.
D. A single run of cable shall not contain more than the equivalent of four 90 degree bends.

C 51. The panelboard serving patient care areas must have the equipment grounding terminal buses bonded together with an insulated continuous conductor not smaller than ___.
A. 12 AWG B. 6 AWG C. 10 AWG D. 8 AWG

D 52. What percent of a metal wireway cross-section may be occupied by splices, taps, and conductors at any point?
A. 20% B. 30% C. 40% D. 75%

A 53. Which of the following conductors are permitted by the NEC to be installed in the same raceway with the service entrance conductors?
(A.) bonding jumpers
B. sub-panel feeders
C. branch circuit conductors
D. none of these
230.7 exception 1

C 54. The required MINIMUM working space, in feet, for a 120/240 volt, single phase service when grounded parts are opposite the service is:
A. 3 1/2 ft. B. 2 1/2 ft. (C.) 3 ft. D. 4 ft.
T110.26(A)(1)

A 55. When conductors are installed in a nipple ___ inches or less, the ampacity adjustment factors for more than 3 current-carrying conductors in a raceway need not be applied.
(A.) 24 B. 30 C. 32 D. 36
310.15(B)(3)

B 56. An overhead feeder is to be installed to a residential garage. The conductors are insulated and have a voltage of 120 volts to ground. This circuit does not pass over a sidewalk or driveway. What is the MINIMUM height above the ground that must be maintained?
A. 8 ft. (B.) 10 ft. C. 12 ft. D. 15 ft.
225.18(1)

D 57. Given: A metal raceway protects the grounding electrode conductor between the enclosure for the main disconnect and the grounding electrode. What is the MINIMUM bonding requirements for this grounding electrode raceway?
A. It is effectively bonded by the conductor.
B. It requires a bonding jumper to the grounding electrode conductor only where it enters the panel.
C. It requires a bonding jumper to the grounding electrode conductor only near the grounding electrode.
(D.) It requires a bonding jumper to the grounding electrode at both ends of the raceway.
250.64(E)

B 58. What is the MAXIMUM distance allowed between supports when installing NM cable?
A. 3 ft. (B.) 4 1/2 ft. C. 6 ft. D. 10 ft.
334.30

D 59. The MAXIMUM length of an equipment bonding jumper routed outside a flexible metal conduit containing branch circuit conductors supplying an air conditioning unit is:
A. 3 feet B. 4 feet C. 5 feet (D.) 6 feet
250.102(E)(3)

B 60. Type MC cable shall not be used where exposed to ___ conditions.
A. wet
C. hazardous (classified)
(B.) destructive corrosive
D. high temperature
330.12(2)

A 61. Without exceptions, the MINIMUM size service lateral conductors allowed by the NEC is ___.
(A.) 8 AWG copper
B. 6 AWG copper
C. 4 AWG aluminum
D. 2 AWG aluminum
230.31(B)

C 62. Which of the following is NOT considered a type of optical fiber cable in the NEC?
A. nonconductive B. conductive (C.) low capacitive D. composite
770.2

C 63. A ground rod is required to be driven a MINIMUM of ___ feet into the soil.
A. 4 B. 6 C. 8 D. 10
250.53(G)
~~250.56~~

D 64. An attachment plug and receptacle may be permitted to serve as a motor controller if the motor is portable and has a MAXIMUM rating of ___.
A. 1/8 HP B. 1/4 HP C. 1/2 HP D. 1/3 HP
430.81 (B)

A 65. Which of the following electrodes must be supplemented by an additional electrode?
A. metal underground water pipe C. metal frame of a building
B. ground ring D. concrete encased
250.53(D)(2)

B 66. Control circuit devices in a motor control starter with screw-type pressure terminals used with #14 copper conductors shall be torqued to a MINIMUM of ___ lb.-in. unless identified for a different torque value.
A. 5 B. 7 C. 10 D. 12
only place in NEC w/ word Torque
430.9 (C)

B 67. The MAXIMUM trade size of flexible metallic tubing is:
A. 1/2 in. B. 3/4 in. C. 1 in. D. 2 in.
not conduit,
360.20(B)

C 68. You have a 7 ft. wide switchboard installed in an electrical equipment room; disregarding exceptions, if the switchboard is rated ___ amperes or more and over six feet wide, the equipment room is required to have two entrances.
A. 400 B. 800 C. 1200 D. 1600
110.26(C)(2)

A 69. The MINIMUM wire bending space required at the top and bottom of a panelboard that has three 3/0 AWG conductors connected to each busbar is:
A. 8 in. B. 7 in. C. 5 in. D. 3 1/2 in.
408.55
T312.6(B)

D 70. When conduit nipples having a MAXIMUM length not to exceed ___ inches are installed between boxes and similar enclosures, the nipples shall be permitted to be filled to 60% of their cross-sectional area.
A. 6 B. 12 C. 18 D. 24
Table 1
Ch 9
Note 4

C 71. Thermal insulation shall not be installed above a recessed lighting fixture or within _____ of the recessed wiring compartment, or ballast.
A. 1/2"
B. 3/4"
C. 3"
D. 6"
410.116(B)

C 72. Disregarding exceptions, where residential lighting outlets are installed in interior stairways, there shall be a wall switch provided:
A. near the stairs.
B. every seven steps.
C. at the top and bottom of the stairs if there are more than six steps.
D. at any convenient location.
210.70(A)(2)
(C)

A 73. Busways shall:
I. have dead ends remain open.
II. be supported at intervals not exceeding 8 feet.
A. neither I nor II B. II only C. I only D. both I and I

368.30
368.58

D 74. What is the MAXIMUM allowable ampacity of #14/2 SJT cord?
A. 15 amperes B. 13 amperes C. 20 amperes D. 18 amperes

400.5(A)(1)
Column A or Column B

B 75. What is the MINIMUM conductor length that must be left for "make-up" at a light outlet box?
A. 12 in. B. 6 in. C. 8 in. D. 4 in.

300.14

A 76. A hospital isolated power system, is a system comprising:
A. an isolating transformer or its equivalent.
B. a transformer or batteries.
C. a generator or transformer.
D. a monitor or transistor.

517.2

D 77. Disregarding exceptions, what is the MINIMUM number of overload units required by the NEC to protect a 3-phase motor?
A. 0 B. 1 C. 2 D. 3

T430.37

B 78. In an unvented major repair garage the area up to a level of 18 inches above the floor is classified as ___ locations.
A. Class I, Div. 1 C. Class II, Div. 1
B. Class I, Div. 2 D. Class II, Div. 2

511.3(C)(1)(b)

C 79. Type FCC cable is designed for installations under ___.
A. tile B. carpet C. carpet squares D. concrete

Flat conductor cable

324.1

C 80. The required MINIMUM working space, in feet, for a 120/240 volt, three phase service when grounded parts are opposite the service is:
A. 3 1/2 ft. B. 2 1/2 ft. C. 3 ft. D. 4 ft.

T110.26(A)(1)

Name: _____ Class: _____ Date: _____ ID: A

TXJ-1103 Simulated Electrical Exam Practice Questions 4-Hour Limit

Multiple Choice

Identify the choice that best completes the statement or answers the question.

380a x 0.67 x 70%.

A 1. Determine the conductor ampacity given the following:
* conductors are 500 KCMIL THWN copper
* ambient temperature is 125 deg. F.
* eight current carrying conductors are in the raceway

T 310.15 (B)(16)
T 310.15 (B)(2)(a)
T 310.15 (B)(3)(a)

(A) 178.2 amps B. 199.5 amps C. 294.6 amps D. 380 amps

C 2. The NEC requires the ampacity of a feeder shall be equal to, or greater than:
A. 125% of the overcurrent protection device.
B. the sum of all branch circuit overcurrent protection devices.
(C) the computed load after demand factors have been applied.
D. the connected load.

220.40

C 3. A 3-inch, trade size, polyvinyl chloride (PVC) conduit shall be supported every ___ ft.
A. 3 B. 5 (C) 6 D. 10

T 352.30

D 4. Where the motor controller also serves as a disconnecting means, it shall open all ___ conductors to the motor.
A. grounded B. neutral C. grounding (D) ungrounded

430.84 exception

C 5. Type MI cable shall be supported at intervals not exceeding ___ feet.
A. 2 B. 4 (C) 6 D. 10

332.30

C 6. Under which, if any, of the following conditions is the neutral NOT to be counted as a current carrying conductor?
I. When it is only carrying the unbalanced current.
II. When it is the neutral of a 3-phase wye-connected system that consists of nonlinear loads.

310.15(B)(5)

A. both I and II B. II only (C) I only D. neither I nor II

D 7. For design B, C, or D motors having a FLC less than 100 amperes, supply conductors having an insulation rating of ___ or higher shall be permitted to be used, provided the ampacity of such conductors does NOT exceed the ___ ampacity.
A. 60 deg. F - 90 deg. C C. 75 deg. C - 90 deg. C
B. 86 deg. F - 90 deg. C (D) 75 deg. C - 75 deg. C

110.14(c)(1)(a)(4)

C 8. What is the ampacity derating factor to be applied when a nonmetallic auxiliary gutter contains 34 current carrying conductors?
A. 49% B. 53% (C) 40% D. 55%

366.23(B) & T 310.15(B)(3)(a)

Name: _____ ID: A

D 9. In general, communications wires and cables shall have a vertical clearance of not less than ___ ft. from all points above roofs which they pass.
A. 3 B. 4 C. 6 (D.) 8 800.44 (B)

C 10. A branch circuit served by 12 AWG THWN conductors is a ___ rated branch circuit when protected by a 15 amp breaker.
A. 20 amp B. 25 amp (C.) 15 amp D. 30 amp 210.3

B 11. Flexible cords and cables shall NOT be used:
A. as elevator cables. C. as data processing cables.
(B.) when run through holes in walls. D. to prevent transmission of vibration. 400.8(2)

C 12. When conductors of different systems are installed in the same raceway, one system grounded conductor shall be white or gray. The other system grounded conductor shall be:
A. green only.
B. white with an identifying colored stripe that is green.
(C.) white with an identifying colored stripe that is not green. 200.6(D)
D. white only

D 13. A load is considered to be continuous if the maximum current is expected to continue for ___ hour(s) or more.
A. 1/2 B. 1 C. 2 (D.) 3 Art 100

B 14. The NEC mandates the MAXIMUM length permitted for a flexible cord supplying a 208 volt, single phase, room air-conditioner to be:
A. 4 ft. (B.) 6 ft. C. 8 ft. D. 10 ft. 440.64

C 15. What is the largest size conductor which is permitted to be connected with a wire binding screw? (receptacle screw)
A. 6 AWG B. 8 AWG (C.) 10 AWG D. 12 AWG 110.14 (A)

A 16. A disconnect installed in a Class II, Div. 2 location shall be ___.
(A.) dusttight B. heavy duty type C. raintight D. general duty type

B 17. Where sizes 1/0 AWG through 4/0 AWG single conductor cables are installed in ladder type cable tray, the MAXIMUM allowable rung spacing for the ladder cable tray shall be:
A. 6 in. (B.) 9 in. C. 12 in. D. 15 in. 392.10(B)(1)

A 18. Which of the following listed types of batteries is NOT permitted for use as a source of power for emergency systems?
(A.) automotive B. lead acid type C. alkali type D. all of these 700.12(A)

C 19. In new installations, the MINIMUM working space the NEC requires between a 480/277 volt, wye, switchboard and a 480 volt motor control center that are facing each other is:
A. 3 ft. B. 3 1/2 ft. (C.) 4 ft. D. 6 ft. T 110.26(A)(1) cond 3

Name: _____ ID: A

A 20. What is the MINIMUM computed branch circuit load, in volt amps, permitted by the NEC for a branch circuit serving an exterior sign?
(A) 1200 B. 1800 C. 1500 D. 2400
220.14 (F)

A 21. How far up a pole above finished grade, must direct buried conductors emerging from the ground be protected by enclosures or raceways?
(A) 8 ft. B. 10 ft. C. 12 ft. D. 15 ft.
300.5(D)(1)

B 22. If a circuit breaker serves as the controller for a motor, and the motor is not in sight of the breaker, the NEC requires which of the following?
A. The motor to be less than 2 HP.
(B) The breaker be able to be locked in the open position.
C. The motor to be Code letter "E".
D. The breaker to be rated 25,000 AIC.
430.102(B) Exception

C 23. You are installing 1/2" rigid metal conduit in a Class I location and a conduit seal is required. The MINIMUM thickness of the sealing compound shall not be less than:
A. 3/8 in. B. 1/2 in. (C) 5/8 in. D. 3/4 in.
501.15(C)(3)
minimum of 5/8" or thickness of the pipe

A 24. A disconnect must be located within sight of a pool, spa or hot tub equipment and must be located at least _____ feet from the inside edge of the pool, spa or hot tub walls.
(A) 5 C. 6
B. 10 D. 20
680.12

D 25. The interrupting capacity (AIC) of a circuit breaker is the MAXIMUM _____ the device is designed to hold.
A. load C. ampere rating
B. voltage (D) short-circuit current
100, 110.9, 110.10

C 26. A 30 HP, 480 volt, 3 phase wound-rotor motor has a full load running current of ___ amps.
A. 27 B. 32 (C) 40 D. 50
T430.250

B 27. A single family dwelling has a 200 amp, 120/240 volt, single phase, main service panel and is being fed with 2/0 AWG THW copper ungrounded service entrance conductors in rigid metal conduit. The MINIMUM allowable size of the bonding jumper for this service entrance conduit is ___.
A. 6 AWG (B) 4 AWG C. 2 AWG D. 1/0 AWG
250.102(C)
T250.66

D 28. Disregarding exceptions, conductors installed in parallel must be:
I. the same length. II. the same size.
A. I only B. neither I nor II C. II only (D) both I and II
310.4(1) & (3)
310.(H)
5 rules for // conductors

C 29. The critical branch of the hospital emergency system shall provide power to all the operating rooms and all:
I. emergency rooms. II. nurses stations.
A. I only B. II only (C) both I and II D. neither I nor II
517.33(A)(3)
9 & (8)f

D 30. Liquidtight flexible metallic conduit shall NOT be used:
A. in lengths in excess of 6 ft. C. in hazardous locations.
B. in concealed work. (D.) where subject to physical damage. 350.12(1)

D 31. Type XHHW insulated conductors may be used in:
A. dry locations only C. dry or damp locations only 310.10(A)(B)(C)
B. wet locations only (D.) dry, damp, or wet locations (2)
T 310.104

B 32. In guest rooms of hotels and motels, a MINIMUM of ___ general purpose receptacles installed in the room is/are required to be readily accessible.
A. 1 (B.) 2 C. 3 D. all 210.60(B)

B 33. Determine the MINIMUM trade size EMT required to enclose eight 6 AWG THHW copper conductors installed in a 50 ft. conduit run.
A. 1 in. (B.) 1 1/4 in. C. 1 1/2 in. D. 2 in. Annex C, T. C1

D 34. Which of the following listed conductors have a greater ampacity when used in a dry location compared to when used in a wet location?
A. THW B. RHW C. THWN (D.) THHW T.310.104

D 35. Determine the MAXIMUM current carrying capacity for four 1/0 AWG THW current carrying copper conductors installed in a common raceway with an ambient temperature of 86 deg. F.
A. 150 amperes B. 105 amperes C. 112 amperes (D.) 120 amperes T310.15(B)(16) T310.15(B)(3)(a)
150 × 80 %.

D 36. Branch circuit conductors supplying more than one motor shall have an ampacity of at least ___ percent of the FLC of the largest motor, plus 100% of the FLC of the other motor(s) in the group.
A. 25% B. 80% C. 100% (D.) 125% 430.24

C 37. Disregarding exceptions, where exposed to the weather, raceways enclosing service entrance conductors shall be:
I. suitable for use in wet locations II. arranged to drain.
A. II only B. I only (C.) both I & II D. either I or II 230.53

D 38. In indoor areas where walls are frequently washed, such as a car wash, metal conduit and metal panelboards shall be mounted with a ___ space between the wall and the conduit or panelboard when the equipment is installed exposed.
A. 3/4 in. B. 1/2 in. C. 3/8 in. (D.) 1/4 in. 300.6(D)

C 39. Determine the MINIMUM size THW copper branch circuit conductors the NEC requires to feed a 3 phase, continuous duty, motor that draws 70 amps per phase. Assume terminations are rated at 75 deg. C.
A. 1 AWG B. 2 AWG (C.) 3 AWG D. 4 AWG 430.22 T310.15(B)(16)
70 × 125% = 87.5 A

B 40. Equipment grounding conductors, when installed, ___ be included when calculating conduit fill.
A. shall not (B.) shall C. should not D. should Ch 9 Note to tbls Note 3

Name: _____ ID: A

A 41. The internal depth of an outlet box used to splice conductors to a light fixture shall not be less than:
A. 1/2 in. B. 15/16 in. C. 3/4 in. D. 1 in. 314.24(A)

D 42. Which of the following listed conduits does the NEC permit to enclose conductors feeding wet-niche underwater pool lights?
A. EMT
B. ENT
C. galvanized rigid metal
D. brass rigid metal 680.23(B)(2)(a)

D 43. Current carrying conductors installed within electrical nonmetallic tubing (ENT) may carry a MAXIMUM of ___ volts.
A. 300 B. 450 C. 500 D. 600 362.12(5)

C 44. A conductor has a computed ampacity of 75 amps. What is the MAXIMUM standard ampere rating of the overcurrent protection device the NEC permits to protect this circuit? This is not a motor circuit or part of a multioutlet branch circuit supplying receptacles.
A. 70 amperes B. 75 amperes C. 80 amperes D. 85 amperes 240.4(B) 240.6(A)
not std size, roll up to 80

C 45. Unused openings in metal boxes, panels, and other enclosures shall be:
A. open.
B. closed.
C. closed to afford protection substantially equivalent to the wall of the equipment 110.12(A)
D. not required to be closed if the enclosure is in a dry location.

D 46. What is the MAXIMUM overcurrent protection allowed for the protection of resistance-type electric space heating equipment?
A. 30 amps B. 40 amps C. 48 amps D. 60 amps 424.22(B)

B 47. What is the MINIMUM size equipment grounding conductor for a 50 ampere branch circuit, as required by the NEC?
A. 12 AWG B. 10 AWG C. 8 AWG D. 6 AWG T250.122

B 48. In a health care facility, a patient bed location in a critical care area is required to have which of the following?
A. Four single receptacles or two duplex receptacles.
B. Six single receptacles or three duplex receptacles. 517.19(B)(1)&(2)
C. Two duplex receptacles or four single receptacles.
D. Two single receptacles or one duplex receptacle.

A 49. What is the MAXIMUM distance that a disconnect can be located from the operator's station for a carnival ride?
A. 6 ft. B. 10 ft. C. 25 ft. D. 50 ft. 525.21(A)

C 50. When a pull box contains conductors of 4 AWG and larger and a straight pull of the conductors is to be made, the length of the box shall not be less than ___ times the trade diameter of the largest conduit entering the box.
A. six B. four C. eight D. twelve

314.28(A)(1)

Name: _____ ID: A

B 51. An AC transformer arc welder has a 50 amp rated primary current and a 60% duty cycle. Determine the MINIMUM size copper 60 deg. C rated conductors the NEC requires to supply this welder.
A. 6 AWG (B.) 8 AWG C. 10 AWG D. 4 AWG
630.11(A)
50A x 0.78 duty cycle = 39A
T310.15(B)(16)

B 52. Determine the ampacity of a 3 AWG THHN copper conductor given the following:
* 2 current carrying conductors are in the raceway.
* The ambient temperature is 35 deg. C.
* The terminations are rated at 60 deg. C. ← weakest link
115A x 0.96 = 110A
↳ go down to 60°
110.14 (C)
A. 105.6 amps (B.) 85 amps C. 81.6 amps D. 110 amps

B 53. A 208 volt, 3 phase, 50 HP, squirrel-cage motor has a full-load current of:
A. 130 amps (B.) 143 amps C. 162 amps D. 195 amps
T430.250

D 54. Areas adjacent to classified locations in commerical garages in which flammable vapors are not likely to be released, such as stock rooms, shall be _____ where effectively cut off by walls or partitions.
A. Class I Div 1 B. Class I Div 2 C. classified (D.) unclassified
511.3(E)(1)

C 55. When a 4 AWG or larger conductor enters a panelboard, which of the following must be provided?
A. A bonding jumper (C.) An insulated bushing
B. A grounding clip D. An insulated grounding conductor
300.4(G)

C 56. Where multiple ground rods are installed, they shall not be less than ___ feet apart.
A. 2 B. 4 (C.) 6 D. 8
250.53(B)

D 57. In general, a motor disconnecting means must disconnect:
A. only the motor. C. only the control circuit.
B. only the controller. (D.) both the motor and controller.
430.101

C 58. Equipment grounding conductors in the assured equipment grounding conductor program, shall be tested for continuity and shall be:
A. stranded. (C.) electrically continuous.
B. copper. D. shielded.
590.6(B)(2)(a)(1)

A 59. When bending type NMS cable, the tightest bend permitted by the NEC, has a radius of:
(A.) 5 times the diameter of the cable or more C. 5 times the radius of the cable or more
B. 5 times the diameter of the cable or less D. 5 times the radius of the cable or less
334.24

D 60. Determine the voltage drop on a branch circuit given the following:
* current = 5 amps
* length = 300 ft.
* resistance = 4 ohms/1000 ft.
A. .02 volts B. .12 volts C. 1.2 volts (D.) 6 volts
VD = I x R
5A x 1.2Ω = 6V

D 61. Before demand factors are taken into consideration in commercial buildings, general purpose receptacle loads are to be computed at not less than ___ VA per outlet.
A. 100 B. 120 C. 150 D. 180

D 62. The MAXIMUM ampacity of an individual branch circuit in a flat conductor cable assembly shall be ___.
A. 10 amperes B. 15 amperes C. 20 amperes D. 30 amperes
324.10(B)(2)

B 63. Circuits that supply outline lighting systems containing incandescent lights shall be rated not to exceed ___ amperes. (neon)
A. 15 B. 20 C. 30 D. 50
600.5(B)(2)

A 64. What is the MAXIMUM number of 1/0 AWG THHN conductors allowed in a 3" x 3" sheet metal auxiliary gutter?
A. 9 B. 10 C. 18 D. 21
366.22(A) w/ Ch 9 Tbl 5

A 65. In an underground rigid non-metallic conduit system that consist of 20 ft. length between pulling points, what is the MAXIMUM number of bends that his run may have?
A. 4 - 90 deg. B. 6 - 90 deg. C. 4 - 120 deg. D. 2 - 360 deg.
352.26

C 66. An 3/8" flexible metallic conduit is permitted for tap conductors when connecting to light fixtures provided the length of the flex does not exceed:
A. 3 ft. B. 4 ft. C. 6 ft. D. 8 ft.
348.20(A)(2) (C) 410.117(C)

A 67. You have an AC service that is fed with four parallel sets of #500 kcmil aluminum conductors. What is the MINIMUM size copper grounding electrode required, when connected to a metal underground water line used as the grounding electrode system?
A. 3/0 AWG B. 4/0 AWG C. 250 kcmil D. 2/0 AWG
T 250.66

A 68. Service heads shall have conductors of different potential brought out through separately ___ openings.
A. bushed B. sized C. isolated D. grounded
230.54(E)

A 69. A 120 volt, single phase, 300 ft. branch circuit carries 5 amps and has a 5.0 voltage drop. What is the resistance of the conductors per foot in this circuit?
A. .003 ohms B. .08 ohms C. .033 ohms D. .12 ohms
R = E/I
5v/5A = 1Ω
1Ω/300 Ft = .0033 ohm

A 70. In a health care facility, low voltage electrical equipment that is likely to become energized that is frequently in contact with the bodies of patients, shall operate on a voltage of ___ volts or less if the equipment is not approved as intrinsically safe, double insulated or moisture resistant.
A. 10 B. 24 C. 100 D. 120
517.64(A)(1)

C 71. You have a surface mounted wireway installed below a surface mounted panelboard. The wireway and the panelboard are connected together by means of conduit nipples. The wireway shall be permitted to extend not more than ___ in. beyond the front of the panelboard.
A. 0 B. 4 C. 6 D. 12
110.26(A)(3)

D
D 72. Lighting and switching requirements in the NEC require the following for crawl spaces not used for storage and not containing equipment.
I. lighting outlet II. wall switch
A. II only B. both I & II C. I only D. neither I nor II
~~110.26(A)(3)~~
210.70(A)(3)

D 73. A 14 AWG branch circuit tap conductor that serves individual outlets, other than receptacle outlets, are permitted to be tapped from a 20-amp branch circuit under what condition?
A. The load is limited to 10-amps
B. Under NO conditions
C. Conductors are sleeved with schedule 80 PVC
D. The conductor length is limited to 18-inches
210.19(A)(4) exception No 1 (c)

C 74. Determine the largest raceway permitted to be installed in a junction box given the following:
* junction box is 12 inches in length
* conductors are #4 AWG
* a straight pull of the conductors is to be made
12" / 8 = 1.5
A. 1 in. B. 1 1/4 in. C. 1 1/2 in. D. 2 in.
314.28(A)(1)

B 75. A feeder tap is to be made at a high bay manufacturing building. Overcurrent protection at the tap is not required, if the tap conductors are not over 100 feet total and the tap is made no less than ___ feet from the floor.
A. 25 B. 30 C. 35 D. 50
240.21(B)(4)&(9)

C 76. Disregarding exceptions, all 3 phase, 277/480 volt, wye electrical services, require ground-fault protection for each service disconnecting means, when rated for a minimum of ___ amps or more.
A. 400 B. 800 C. 1000 D. 1500
230.95

D 77. In a data-processing room, the disconnecting means for the computers shall be:
A. within sight.
B. near an exit door.
C. at the main disconnect.
D. at approved locations.
645.10(A)(1)

D 78. Determine the resistance, in ohms, of a 100 watt, 120 volt, incandescent light bulb.
A. .833 ohms B. 1.2 ohms C. 100 ohms D. 144 ohms
$R = E^2/W$
$120 \times 120 / 100 = 144$

B 79. When branch circuit conductors are installed inside a ballast compartment and they are within 3 inches of the ballast, the conductors shall have a temperature rating not lower than ___ deg. C.
A. 105 B. 90 C. 75 D. 60
410.68

C 80. A telephone cable needs to be installed through a fire rated wall in a home to a phone in an attached garage. According to the NEC what provisions must be made?
A. Special provisions must be made.
B. Junction boxes must be installed on both sides of the wall, connected with a conduit nipple.
C. Openings around the penetration must be fire stopped using approved methods.
D. No penetrations of any kind may be made through a fire-rated wall.
800.26

310

I general
- .1 = scope
- .2 = definitions

II installation
- .10 = uses permitted
- .15 = ampacities ↑ to 2000V
- .60 = conductors 2001 – 35,000V

III construction spec
- .104 = construction & application
- .106 = conductors
- .110 = conductor identification
- .120 = marking

312

I general
- .1 = scope
- .2 = damp/wet locs
- .11 = spacing

II install
- .10 = material
- .15 = damp/wet locs

320

- .10 uses permitted
- .12 uses not permitted
- ~~.30 ampacity~~
- .30 securing/supporting
- .80 ampacity
- .100 construction specs
- ~~.110 conductor ident.~~
- .120 marking

tables

T 314.16(A) metal boxes (cu in)

T 300.5 min cover req

T 300.50 " " over 1000V

T 310.15(B)(16) Ampacities (3 conductor

T 310.104(A) conductor application/insulation

T 314.16(B) volume allowance for conductors

T 314.28(A) " " 4 AWG ↑

T 250.122 (EGC)

T 250.66 (GEC)

T 110.26(A)(1) - working spaces

T 110.28 - enclosure types

ch 9 tbls 1 = cross section % conduit (fill)

T 430.247 – T 430.250 (4 tbls) – FLC

T 430.22(E) non cont duty motors %'s

- diff between guarded, exposed, enclosed, etc
- diff between ground fault/arc fault
- diff types of breakers

~~annex C~~

~~ch 9 tbls~~ – conduit fill

ch 9 tbl 4 = % area of conductors (fill)

ch 9 tbl 8 = cmil chart

- diff between FLA (nameplt) & FLC (code) & when to use them.