Sample questions CA State License Exam

Based on the 2014 NEC (Currently adopted in CA)

(d) none of these

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1.	The alternate source for emergency systems shall have ground-fault protection of equipment.	5.	Radio and television receiving antenna systems must have bonding or grounding electrode conductors that are
	(a) True (b) False		(a) copper or other corrosion-resistant conductive material (b) insulated, covered, or bare
2.	Listed packaged spa or hot tub equipment assemblies, or self-contained spas or hot tubs installed outdoors, are permitted to have flexible connections using		(c) securely fastened in place and protected where subject to physical damage(d) all of these
	(a) LFMC or LFNC (b) cords not longer than 15 ft, where GFCl protected	6.	Branch-circuit conductors supplying a single continuous-duty motor shall have an ampacity not less than rating.
	(c) a or b (d) none of these		(a) 125 percent of the motor's nameplate current (b) 125 percent of the motor's full-load current rating as deter-
3.	ch circuit supplying a sign within or adjacent to a fountain all		mined by 430.6(A)(1) (c) 125 percent of the motor's full locked-rotor (d) 80 percent of the motor's full-load current
	(a) have GFCI protection(b) be capable of being locked in the open position(c) operate at less than 15V(d) be an intrinsically safe circuit	7.	Raceways and cables installed into the of open bottom equipment shall not be required to be mechanically secured to the equipment.
4.	A separate shall be provided for the elevator car lights, receptacle(s), auxiliary lighting power source, and ventilation on each elevator car.		(a) bottom (b) sides (c) top
	(a) branch circuit(b) disconnecting means(c) connection		(d) any of these

8.	equipment room contains (a) a disconnecting means complying with 645.10 (b) a separate heating/ventilating/air-conditioning (HVAC) system is provided (c) separation by fire resistance-rated walls, floors, and ceiling (d) all of these	13.	achieve an overall maximum primary protector grounding conductor length of 20 ft or less for network-powered broadband communications systems, and a grounding means is not present, a separate communications ground rod shall be driven and be bonded to the power grounding electrode system with a 6 AWG conductor.
9.	When FMC is used where flexibility is necessary to minimize the transmission of vibration from equipment or to provide flexibility for equipment that requires movement after installation,shall be installed.		(a) 5-foot (b) 8-foot (c) 10-foot (d) 20-foot
	(a) an equipment grounding conductor(b) an expansion fitting(c) flexible nonmetallic connectors(d) none of these	14.	Reinforcing bars for use as a concrete-encased electrode can be bonded together by the usual steel tie wires or other effective means. (a) True (b) False
10.	The minimum clearance between an electric space-heating cable and an outlet box used for surface luminaires shall not be less than in. (a) 6 (b) 8 (c) 14 (d) 18	15.	Where installed to reduce electrical noise for electronic equipment, a metal raceway can terminate to a(n) nonmetallic fitting(s) or spacer on the electronic equipment. The metal raceway shall be supplemented by an internal insulated equipment grounding conductor. (a) listed (b) labeled
11.	The ampacity adjustment factors in 310.15(B)(3)(a) shall be applied to a metal wireway only where the number of current-carrying conductors in any cross section of the wireway exceeds	16.	(c) identified (d) marked An outdoor wire-strung antenna conductor of a receiving station with a 75 ft span using a hard-drawn copper conductor shall not
10	(a) 30 (b) 40 (c) 50 (d) 60		be less than AWG. (a) 17 (b) 14 (c) 12 (d) 10
12.	If the transfer switch for a portable generator switches the conductor, then it is being used as a separately derived system and the portable generator shall be grounded in accordance with 250.30. (a) phase (b) equipment grounding (c) grounded (d) all of these	17.	Where branch-circuit wiring in a dwelling unit is modified, replaced, or extended in any of the areas specified in 210.12(A), the branch circuit must be protected by a (a) listed combination AFCI located at the origin of the branch circuit (b) listed outlet branch-circuit AFCI located at the first receptacle outlet of the existing branch circuit (c) GFCI circuit breaker or receptacle (d) a or b

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18.	Only electrical equipment and wiring associated with the operation of the information technology room is allowed to be installed	23.	A branch-circuit overcurrent protective device is capable of providing protection for
	in the room. This does include HVAC systems, communications systems, telephone, fire alarm systems, security systems, water detection systems, and other related protective equipment.		(a) service conductors(b) feeders(c) branch circuits
	(a) True (b) False	0.4	(d) all of these
19.	Access to electrical equipment shall not be denied by an accumulation of optical fiber cables that removal of panels, including suspended-ceiling panels.	24.	For ungrounded systems, noncurrent-carrying conductive materials enclosing electrical conductors or equipment shall be connected to the in a manner that will limit the voltage imposed by lightning or unintentional contact with higher-voltage lines.
	(a) prevents(b) hinders(c) blocks(d) require		(a) ground(b) earth(c) electrical supply source(d) none of these
20.	In assembly occupancies of fire-rated construction, nonmetallic raceways encased in not less than in. of concrete shall be permitted.	25.	Disconnecting means shall be provided to each boat from its supply connection(s). The disconnecting means shall consist of a circuit breaker, switch, or both, and shall identify which receptacle it controls.
	(a) 1 (b) 2 (c) 3 (d) 4		(a) isolate(b) separate(c) guard
21.	Where livestock is housed, any portion of an underground equipment grounding conductor run to the building or structure shall be (a) insulated	26.	(d) control When HDPE conduit enters a box, fitting, or other enclosure, a(n) shall be provided to protect the conductor from abrasion, unless the box design provides such protection.
	(b) covered (c) either a or b (d) neither a nor b		(a) bushing(b) adapter(c) a or b(d) reducing bushing
22.	Luminaires installed in Class I, Division 1 locations shall be protected from physical damage by a suitable (a) warning label (b) pendant (c) guard or by location (d) all of these	27.	Any building or structure with a stand-alone PV system (not connected to a utility service source) must have a permanent installed on the exterior of the building or structure at a readily visible location acceptable to the authority having jurisdiction. The must indicate the location of the stand-alone PV system disconnecting means and that the structure contains a stand-alone electrical power system. (a) plaque (b) directory (c) a and b (d) a or b

 Where batteries are used for in aux gency systems, the authority having jui periodic maintenance. 	55% NT	Wiring and equipment supplied from storage batteries must be in accordance with Chapters 1 through 4 of the <i>NEC</i> unless otherwise permitted by 480.5.
(a) starting(b) control or ignition(c) a and b		(a) True (b) False
(d) none of these 29. When separate equipment grounding cond	35. ductors are provided in	Where no statutory requirement exists, the authority having jurisdiction can be a property owner or his/her agent, such as an architect or engineer.
panelboards, a shall be secured ins (a) grounded conductor (b) terminal lug		(a) True (b) False
(c) terminal bar (d) none of these	36.	Article 551 covers combination electrical systems, generator installations, and, nominal, systems.
 In Class III locations, receptacles and a be of the grounding type, shall be design the accumulation or the entry of, escape of sparks or molten particles. 	ned so as to minimize	(a) 120V (b) 120/208V (c) 120/240V (d) all of these
(a) gases or vapors(b) particles of combustion(c) fibers/flyings(d) none of these	37.	The of a dc PV source circuit or output circuit is used to calculate the sum of the rated open-circuit voltage of the series-connected PV modules multiplied by the correction factor provided in Table 690.7.
 Type NM cables can be used for brainstallations without height limitation and (a) True 	10 Committee	 (a) minimum allowable ampacity of conductors (b) maximum allowable ampacity of conductors (c) minimum photovoltaic system voltage (d) maximum photovoltaic system voltage
(b) False	38.	A groundedwire PV system must have one conductor
 32. Conductors for an appliance circuit suppliance or appliance receptacle in an in less than 50V shall not be smaller than equivalent. (a) 18 	nstallation operating at	grounded or be impedance grounded, and comply with 690.5. (a) 2 (b) 3 (c) 4 (d) any of these
(b) 14 (c) 12 (d) 10 33. Luminaires in Class III locations exposed	39. d to physical damage	Which of the following wiring methods and enclosures that contain photovoltaic power source conductors must be marked "WARNING PHOTOVOLTAIC POWER SOURCE" by means of permanently affixed labels or other approved permanent marking?
shall be protected by a(n) guard. (a) plastic (b) metal (c) suitable (d) explosionproof		(a) Exposed raceways, cable trays, and other wiring methods.(b) The covers or enclosures of pull boxes and junction boxes.(c) Conduit bodies in which any of the available conduit openings are unused.(d) all of these

40.	Branch circuits that supply signs	46.	The maximum number of conductors permitted in any surface			
	(a) are to be considered a continuous load for the purposes of		nonmetallic raceway shall be			
	calculations (b) must be rated 30A or less for neon tubing installations (c) must be rated not more than 20A for signs and outline lighting systems other than neon		(a) no more than 30 percent of the inside diameter(b) no greater than the number for which it was designed(c) no more than 75 percent of the cross-sectional area(d) that which is permitted in Table 312.6(A)			
	(d) all of these	47.	The permitted conduit fill for five conductors is percent.			
41.	Metal raceways shall be bonded to the metal pole with a(n) (a) grounding electrode (b) grounded conductor (c) equipment grounding conductor	48.	(a) 35 (b) 40 (c) 55 (d) 60 When the calculated number of conductors or cables, all of the			
42.	(d) any of these What is the minimum cover requirement for direct burial Type UF cable installed outdoors that supplies a 120V, 30A circuit?	40.	same size, installed in a conduit or in tubing includes a decimal, the next higher whole number shall be used when this decimal is or larger.			
	(a) 6 in. (b) 12 in. (c) 18 in. (d) 24 in.		(a) 0.40 (b) 0.60 (c) 0.70 (d) 0.80			
43.	Lighting systems operating at 30V or less can be concealed or extended through a building wall, floor or ceiling without regard to the wiring method used.	49.	For PV systems, a field-installable unit including a collection of modules mechanically fastened together and wired, is called a(n)			
	(a) True (b) False		(a) panel(b) array(c) bank			
44.	A is an enclosed assembly that can include receptacles,		(d) gang			
	circuit breakers, fused switches, fuses, watt-hour meter(s), pan- elboards and monitoring means approved for marine use. (a) marine power receptacle (b) marine outlet (c) marine power outlet (d) any of these	50.	The current for a hermetic refrigerant motor-compressor is the current resulting when the motor-compressor is operated at the rated load, rated voltage, and rated frequency of the equipment it serves. (a) full-load			
45.	A disconnecting means is required within sight of the storage battery for all ungrounded battery system conductors operating at over nominal.		(b) nameplate rating(c) selection(d) rated-load			
	(a) 20V (b) 30V (c) 40V (d) 50V					

49.

51.	Receptacles of dc plugging boxes shall be rated at not when used on a stage or set of a motion picture studio.	57.	The photovoltaic system voltage is the direct-current voltage of any PV source or PV output circuit.
	(a) more than 30A (b) less than 20A (c) less than 30A		(a) True (b) False
1272	(d) more than 20A	58.	A sign shall be placed at the service-entrance equipment indicating the of on-site optional standby power sources.
52.	Luminaires can be installed in a commercial cooking hood if the luminaire is identified for use within a cooking hood.		(a) type (b) location
	(a) nonresidential		(c) manufacturer
	(b) commercial (c) multifamily		(d) a and b
53.	(d) all of these Amplifiers, loudspeakers, and other equipment shall be located	59.	In Class I locations, attachment plugs shall be of the type providing for a flexible cord and shall be identified for the location.
	or protected so as to guard against environmental exposure or physical damage that might cause		(a) sealing compound around (b) quick connection to
	(a) a fire (b) shock		(c) connection to the equipment grounding conductor of (d) none of these
	(c) personal hazard		
	(d) all of these	60.	In mobile/manufactured homes, portable appliances could be, if these appliances can be moved from one place to
54.	Flexible cords and cables shall be protected by where passing through holes in covers, outlet boxes, or similar enclo-		another in normal use.
	sures.		(a) refrigerators (b) range equipment
	(a) bushings		(c) clothes washers
	(b) fittings (c) a or b		(d) all of these
	(d) none of these	61.	In Class II, Division 1 locations, switches, circuit breakers, motor controllers, and fuses, including pushbuttons, relays, and similar
55.	Wet-niche luminaires installed in swimming pools shall be removable from the water for inspection, relamping, or other		devices shall be provided with enclosures that are
	maintenance. The luminaire maintenance location shall be accessible		(a) explosionproof (b) identified for the location
	(a) while the pool is drained		(c) dusttight (d) weatherproof
	(b) without entering the pool water		
	(c) during construction (d) all of these	62.	Coaxial cables installed in buildings for CATV shall be listed except for the first 50 ft that enters a building in accordance with 820.48.
56.	The grounding conductor for an antenna mast or antenna discharge unit, if copper, shall not be smaller than 10 AWG.		(a) True (b) False
	(a) True (b) False		

63.	Where Type NM cable is run at angles with joists in unfinished basements and crawl spaces, it is permissible to secure cables not smaller than conductors directly to the lower edges of the init	68.	All 15A and 20A, single-phase, 125V through 250V receptacles located within ft of a fountain edge shall have GFCI protection.
	the joist. (a) two, 6 AWG (b) three, 8 AWG (c) three, 10 AWG (d) a or b		(a) 8 (b) 10 (c) 15 (d) 20
64.	For emergency systems, means for testing all emergency lighting and power systems during maximum anticipated load conditions shall be provided. (a) True	69.	Branch-circuit conductors for data processing equipment in information technology equipment rooms shall have an ampacity not less than of the total connected load. (a) 80 percent (b) 100 percent
C E	(b) False In marinas or boatyards, the NEC requires a(n) discon-		(c) 125 percent (d) the sum
65.	necting means, which allows individual boats to be isolated from their supply connection.	70.	Interconnecting cables under raised floors that support information technology equipment shall be Type
	(a) accessible(b) readily accessible(c) remote(d) any of these		(a) RF (b) Type UF (c) LS (d) DP
66.	A separate overload device used to protect continuous-duty motors rated more than 1 hp shall be selected to trip at no more than percent of the motor nameplate full-load current rating if marked with a service factor of 1.15 or greater. (a) 110 (b) 115	71.	"Bonded" can be described as to establish electrical continuity and conductivity. (a) isolated (b) guarded (c) connected (d) separated
67.	(c) 120 (d) 125 Boxes and conduit bodies, covers, extension rings, plaster rings, and the like shall be durably and legibly marked with the manu-	72.	In industrial establishments with restricted public access where only qualified persons will service the installation, MC-HL cable is allowed to be used in a Class I, Division 1 location if it, and terminated with fittings listed for the application. Such cable
	facturer's name or trademark.		must comply with Part II of Article 330. (a) is listed for use in Class I, Zone 1, or Division 1 locations
	(a) True (b) False		 (b) has a gas/vaportight continuous corrugated metallic sheath, an overall jacket of suitable polymeric material (c) has a separate equipment grounding conductor(s) in accordance with 250.122 (d) all of these

73.	The connected load on lighting track is permitted to exceed the rating of the track under some conditions. (a) True	79.	A run of RMC shall not contain more than the equivalent of quarter bend(s) between pull points such as conduit bodies and boxes.
74.	(b) False Conductors for nonpower-limited fire alarm circuits shall be		(a) one (b) two (c) three (d) four
	(a) solid copper(b) stranded copper(c) copper or aluminum(d) a or b	80.	A GFCI shall be installed in the branch circuit supplying luminaires operating at more than the low-voltage contact limit so there is no shock hazard during
75.	Class 2 and Class 3 cables listed as suitable for general-purpose use with the exception of risers, ducts, plenums, and other spaces used for environmental air, shall be Type(s)		(a) construction(b) pool pump motor maintenance(c) relamping(d) overload conditions
	(a) CL2P and CL3P (b) CL2R and CL3R (c) CL2 and CL3	81.	The output of an ac module is considered an output circuit as defined in 690.2.
76.	(d) PLTC Cable made and insulated by approved methods can be located within a cable tray provided they are accessible, and do not project above the side rails where the splices are subject to		(a) inverter (b) module (c) PV (d) subarray
	physical damage. (a) connections (b) jumpers (c) splices (d) conductors	82.	Branch circuits for pool-associated motors shall be installed in wiring methods including Any wiring method employed shall include an insulated copper equipment grounding conductor sized in accordance with 250.122, but not smaller than 12 AWG.
77.	Where an equipment grounding conductor is installed underground within an agricultural building, it shall be a(n) conductor.		(a) PVC conduit(b) electrical metallic tubing where installed on or within buildings(c) flexible metal conduit(d) a or b
	(a) insulated or covered(b) copper(c) bare(d) any of these	83.	Article covers the installation of portable wiring and equipment for carnivals, circuses, exhibitions, fairs, traveling attractions, and similar functions.
78.	The accessible portion of abandoned audio distribution cables shall be removed. (a) True (b) False		(a) 518 (b) 525 (c) 590 (d) all of these

84.	Switches or circuit breakers shall not disconnect the grounded conductor of a circuit unless the switch or circuit breaker (a) can be opened and closed by hand levers only	89.	Class 2 or Class 3 cables, installed in vertical runs penetrating more than one floor or installed in a shaft without being installed in a raceway, shall be Type
	 (a) can be opened and closed by hand levels only (b) simultaneously disconnects all conductors of the circuit (c) opens the grounded conductor before it disconnects the ungrounded conductors (d) none of these 		(a) CL2R (b) CL3R (c) CL2P (d) a or b
85.	At least one lighting outlet containing a switch or controlled by a wall switch shall be installed in attic spaces containing ballasts for electric signs. At least one shall be at the usual point of entry to these spaces. The lighting outlet shall be provided at or near the equipment requiring servicing.	90.	Direct-buried conductors or cables can be spliced or tapped without the use of splice boxes when the splice or tap is made in accordance with 110.14(B). (a) True (b) False
	(a) receptacle(b) switch(c) point of control(d) luminaire	91.	Generally speaking, conductors for lighting or power may occupy the same enclosure or raceway with conductors of power-limited fire alarm circuits.
86.	An encased or buried connection to a concrete-encased, driven, or buried grounding electrode shall be accessible.		(a) True (b) False
	(a) True (b) False	92.	The conductor insulation in Type MI cable shall be a highly compressed refractory mineral that provides proper for all conductors.
87.	shall be installed so that the wiring contained in them can be rendered accessible without removing any part of the building or structure or, in underground circuits, without excavating sidewalks, paving, or earth.		(a) covering (b) spacing (c) resistance (d) none of these
	(a) Boxes(b) Conduit bodies(c) Handhole enclosures(d) all of these	93.	A multioutlet assembly can be installed in (a) dry locations (b) wet locations
88.	The point of entrance of an optical fiber installation is the point at which the optical fiber cable emerges from an external wall, from a concrete floor slab, from rigid metal conduit, or from intermediate metal conduit.		(c) a and b (d) damp locations
	(a) outside a building(b) within a building(c) on the building(d) none of these		

94.	Where GFCI protection for personnel is supplied by plug-and-cord-connection to the branch circuit or to the feeder for temporary wiring such as exhibition halls in assembly occupancies, the GFCI protection shall, whether assembled in the field or at the factory.	97.	EMT shall not be used where (a) subject to severe physical damage (b) protected from corrosion only by enamel (c) used for the support of luminaires (d) any of these
	 (a) be listed as portable ground-fault circuit interrupter protection (b) provide a level of protection equivalent to a portable ground-fault circuit interrupter (c) must provide the same level of protection as ground-fault protection for equipment (d) a or b 	98.	Overcurrent devices for legally required standby systems shall be with all supply-side overcurrent devices. (a) series rated (b) selectively coordinated (c) installed in parallel (d) any of these
95.	Electric pipe organ circuits shall be arranged so that 26 AWG and 28 AWG conductors are protected from overcurrent by an overcurrent device rated not more than (a) 2A (b) 4A (c) 6A (d) 8A	99.	Where PV source and output circuits operating at greater than are installed in a(n) location, the circuit conductors must be guarded or installed in a Chapter 3 wiring method. (a) 30V, accessible (b) 30V, readily accessible (c) 60V, accessible (d) 60V, readily accessible
96.	A feeder supplying fixed motor load(s) shall have a protective device with a rating or setting branch-circuit short-circuit and ground-fault protective device for any motor in the group, plus the sum of the full-load currents of the other motors of the group. (a) not greater than the largest rating or setting of the (b) 125 percent of the largest rating of any (c) equal to the largest rating of any (d) none of these	100.	Fountain equipment supplied by a flexible cord shall have all exposed noncurrent-carrying metal parts grounded by an insulated copper equipment grounding conductor that is an integral part of the cord. (a) True (b) False

Answers to sample questions (with code reference)

1.	(b)	700.27	51.	(C)	530.14
2.	(c)	680.42(A)(1) and (2)	52.	(b)	410.10(C)(1)
3.	(a)	680.57(A) and (B)	53.	(d)	640.4
4.	(a)	620.22(A)	54.	(c)	400.14
5.	(d)	810.21(A), (B), (C), and (D)	55.	(b)	680.23(B)(6)
6.	(b)	430.22	56.	(a)	810.21(H)
7.	(a)	300.12 Ex 2	50. 57.		690.2 Photovoltaic System Voltage
8.	(d)	645.4(1), (2), and (5)	58.	(a)	702.7(A)
9.	(a)	348.60	50. 59.	(d)	501.145(B)
10.	(b)	424.39	60.	(c)	550.2 Appliance, Portable Note
11.	(a)	376.22(B)	61.	25 25	502.115(A)
12.	(C)	702.11(A)	62.	(b)	820.113(A) Ex
13.	(a)	830.100(A)(4) Ex and 830.100(B)(3)(2)		(a)	
14.	(a)	250.52(A)(3)(1)	63.	(q)	334.15(C)
15.	(a)	250.96(B) and 300.10 Ex 2	64.	(a)	700.3(E)
16.	(b)	810.16(A) and Table 810.16(A)	65.	(b)	555.17(B)
17.	(d)	210.12(B)	66.	(d)	430.32(A)(1)
18.	(a)	645.4(6) and Note	67.	(a)	314.44
19.	(a)	770.21	68.	(d)	680.58
20.	(b)	518.4(A)	69.	(c)	645.5(A)
21.	(b)	547.5(F)	70.	(d)	645.5(E)(6)a.
22.	(c)	501.130(A)(2)	71.	(c)	100 Bonded
23.	(d)	100 Overcurrent Protective Device, Branch-Circuit	72.	(d)	501.10(A)(1)(c)
24.	(b)	250.4(B)(1)	73.	(b)	410.151(B)
25.	(a)	555.17 and 555.17(A)	74.	(d)	760.49(C)
26.	(c)	353.46	75.	(c)	725.179(C)
27.	(d)	690.56(A)	76.	(c)	392.56
28.	(c)	700.3(C)	77.	(a)	547.5(F)
29.	(c)	408.40	78.	(a)	640.6(C)
30.	(c)	503.145	79.	(d)	344.26
31.	(a)	590.4(C)	80.	(c)	680.23(A)(3)
32.	(d)	720.4	81.	(a)	690.6(B)
33.	(c)	503.130(B)	82.	(d)	680.21(A)(1) and (2)
34.	(a)	480.4	83.	(b)	525.1
35.	(a)	100 Note, Authority Having Jurisdiction	84.	(b)	404.2(B) Ex
36.	(d)	551.4(B)	85.	(c)	600.21(E)
37.	(d)	690.7(A)	86.	(b)	250.68(A) Ex 1
38.	(a)	690.41(2)	87.	(d)	314.29
39.	(d)	690.31(G)(3)(1),(2), and (3)	88.	(b)	770.2 Point of Entrance
40.	(d)	600.5(B)(1) and (2)	89.	(d)	725.179(B)
41.	(c)	410.30(B)(5)	90.	(a)	300.5(E)
42.	(d)	300.5(A) and 300.5 Table Column 1	91.	(b)	760.136(A)
43.	(b)	411.5(A)(1)	92.	(b)	332.112
44.	(c)	555.2 Marine Power Outlet	93.	(a)	380.10
45.	(d)	480.6(A)	94.	(d)	518.3(B)
46.	(b)	388.22	95.	(C)	650.8
47.		Chapter 9, Table 1	96.	(a)	430.62(A)
48.		Chapter 9, Notes to Tables, Note 7	97.	(d)	358.12(1), (2), and (5)
49.		690.2, Panel	98.	(b)	701.27 Coordination
50.		440.2 Rated-Load Current	99.	(b)	690.31(A)
	8. 6		100.	(a)	680.55(B)