



2023 Journeyman Code Practice Exam - 100

Question Answer Key

#	CORRECT ANSWER	ANSWER JUSTIFICATION OR CODE REFERENCE
1	D. threaded steel intermediate metal conduit	514.8
2	A. metal, wood, or equivalent protective covering.	250.10
3	B. 125A	<p>Step 1: Lighting T220.42(A) - retail - $1.9\text{va} \times 3000 \text{ sq ft} = 5700\text{VA}$</p> <p>Step 2: Show Windows 220.46(A) - 30 ft @ 200VA per ft = 6000VA</p> <p>Step 3: Receptacles 220.14(I) - 100 receptacles @ 180VA per receptacle = 18,000VA First 10,000VA @ 100% per T220.47 = 10,000VA Remaining @ 50% = $8000 \times 0.5 = 4000\text{VA}$ Receptacle demand load = $10,000\text{VA} + 4000\text{VA} = 14,000\text{VA}$</p> <p>Step 4: Add all of the above totals 5700VA lighting + 6000VA show window + 14,000VA receptacles = 25,700VA $25,700\text{VA} / 240\text{V} = 107\text{A}$ T310.16, 75°C column - 2 AWG THW Copper would be selected to serve a 107A load. T240.6(A) lists 100A, 110A, and 125A standard breakers to choose from.</p> <p>240.4(B) allows using the next higher breaker above the ampacity of the conductors being protected. Our actual calculated load is only 107A, so we could use a 110A breaker to protect this service. Since our conductors are 115A-rated though, and most service panelboards are rated either 100A or 125A, we would realistically select a 125A breaker for this instance and we'd be within code tolerances since the next sized breaker above our conductor's 115A, is 125A.</p>
4	D. 1,200A / 3,000A	230.95(A)
5	A. 6 inches	511.10(B)(3)

6	C. maximum operating current	430.6(C)
7	A. the building or structure disconnecting means	250.32(C)(1)
8	B. manual	702.4(A)(1)
9	D. ungrounded conductors	480.7(A)
10	C. FRR	728.120
11	D. 30kW	<p>Refer to Table 220.55, Column C, for the number of appliances, which is 15.</p> <p>The maximum demand factor for 15 ranges is 30kW per Column C.</p>
12	A. insulated copper equipment grounding conductor	517.13(B)(1)(2)
13	D. continuous maintenance and supervision ensure that qualified persons service the installed cable tray system	392.60(A)
14	B. the concrete tight type	344.42(A)
15	A. electrically continuous with the raceway	374.18(B)
16	C. 175%	Table 430.52(C)(1)
17	C. 1 ½ inch	<p>Chapter 9 Table 5 lists 1 AWG as 0.1562 sq-in, 2 AWG as 0.1158 sq-in, and 4 AWG as 0.0824 sq-in. So the sum of these 5 conductors is $0.1562 + (2 \times 0.1158) + (2 \times 0.0824) = 0.5122$ sq-in.</p> <p>Chapter 9 Table 4 Article 348 lists in the "Over 2 conductors 40% column" 1 1/4" FMC has an area of 0.511 sq-in which is too small. Therefore the next size up 1 1/2" FMC with an area of 0.743 sq-in must be selected.</p>
18	B. 8 AWG	240.21(B)(1); Table 310.16
19	A. lockable in the open position	450.14 mentions "lockable", and 110.25 mentions lockable in the "open position"
20	D. Liquid-Tight Flexible Metal Conduit	300.22(B)
21	C. 164 A	Table 430.247

22	B. grounded	516.23
23	A. high-voltage switch or equivalent disconnecting means	660.24
24	D. Remainder over 12,500VA	Table 220.45
25	C. 1 ½	Table 220.42(A)
26	C. 18 inches	Table 300.5(A)
27	B. 15.2A	Table 430.250
28	A. mechanical protection	525.21(B)
29	D. closed	368.58
30	B. equipment grounding conductor	348.60(B)
31	A. at terminal and junction locations	760.30
32	C. insulated equipment grounding conductor	250.146(D)
33	D. receptacles located more than 5 1/2 ft above the floor	406.12, Exception (1)
34	A. 125%	680.10(A)
35	B. 4	Ch. 9, Table 1 shows 40% fill. Annex C, C.1 EMT shows 4 1/0 AWG conductors can fit in 1 1/2" EMT at 40% fill
36	D. 3X	Table 110.28
37	B. Supply-Side Bonding Jumper	100
38	A. 30	110.26(A)(2)
39	D. mechanically connected	314.30(B)
40	C. grounded conductor at the service	250.104(C)
41	B. attachment plug and receptacle	440.13
42	A. shall not	404.2(B)
43	B. external to	250.94(A)

44	A. irreversible compression-type connectors	250.64(C)
45	B. $\frac{1}{4}$	312.2
46	D. attachment plug	100
47	A. voltages greater than the low-voltage contact limit	680.23(A)(3)
48	D. 1500	410.100
49	A. 50%	210.23(B)(2)
50	C. 50	314.27(A)(2)
51	C. equipment grounding	338.10(B)(2)
52	A. Over 350 kcmil – 600 kcmil copper	Table 250.66
53	B. shall not be	250.4(A)(5)
54	C. 80A, 90A, 350A, 110A	Table 240.6(A)
55	A. A continuous white outer finish	200.6(B)
56	A. 80	210.23(B)(1)
57	D. Underground	348.12
58	B. damp	404.4(B)
59	B. 6	Table 314.16(A)
60	A. If equipment operates with any terminal at over 150V to ground	250.110
61	C. 300	410.100
62	C. 125%	424.4(B)
63	A. 10	230.24(B)
64	D. Wet locations	312.2
65	B. one-family dwelling units	334.10
66	D. bowl of the sink	210.8(A)(7)
67	C. 24A	Table 210.21(B)(2)

68	A. rated current	100
69	C. 125	210.20(A)
70	B. 6 AWG Copper	242.52
71	D. 10	514.8(A)
72	A. 40A	<p>430.6(A)(2) states motor overload protection is based on the FLA rating on the motor nameplate. In this case 32A.</p> <p>430.32(A)(1) states motors with marked service factor 1.15 or greater may have an overload device selected which is no more than 125% of the FLA rating. Thus $32A \times 1.25 = 40A$.</p>
73	A. 200A	<p>First figure out primary current with $I = P / E$. $I = 75,000VA / 480V = 156A$</p> <p>T450.3(B) "Primary Only Protection" shows 125% of transformer rated current for primary protection with currents of 9A or more.</p> <p>Therefore we take $156A \times 1.25 = 195A$. Next look in Table 240.6(A) to see if there's a 196A breaker, and there's not.</p> <p>Note 1 under Table 450.3(B) states: "Where 125 percent of this current does not correspond to a standard rating of a fuse or nonadjustable circuit breaker, a higher rating that does not exceed the next higher standard rating shall be permitted." Therefore rounding up to a 200A breaker is allowed.</p>
74	B. 4 AWG copper	T250.122
75	C. be permitted to be installed with conductors of a non intrinsically safe circuit.	504.30(A)(1)(2)
76	D. supply-side bonding jumper	250.35(B)
77	B. 4 inches	225.14(A)
78	A. shall be electrically grounded	516.6(F)
79	C. bushing	610.12(B)
80	B. in a separate room	540.11(A)
81	C. 2 AWG copper	Table 250.102(C)(1)
82	B. 20 feet	600.32(J)(1)
83	A. totally enclosed	515.7(B)

84	D. metal raceways	530.5(A)
85	B. 5 feet	366.30(A)
86	A. shall not be used	240.10
87	C. 0.213 inches	Chapter 9, Table 5A
88	B. 180 sq-in or more	410.23
89	D. service-entrance equipment	702.7(A)
90	B. 12 inches	470.11 and 470.20(C)
91	C. 65%	Table 430.23(C)
92	A. motor	430.8
93	A. 3 feet	408.18(A)
94	D. Any of these	240.6(C)
95	C. 1000A	210.13
96	A. Class I Division 1	Table 514.3(B)(1)
97	B. interlocked	625.52(B)(4)
98	D. staggered	225.24
99	A. staggered	225.24
100	B. FALSE	450.23(A)