



## 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><b>Step 1: Lighting</b> T220.42(A) - retail - 1.9va x 3000 sq ft = 5700VA</p> <p><b>Step 2: Show Windows</b> 220.46(A) - 30 ft @ 200VA per ft = 6000VA</p> <p><b>Step 3: Receptacles</b> 220.14(I) - 100 receptacles @ 180VA per receptacle = 18,000VA First 10,000VA @ 100% per T220.47 = 10,000VA Remaining @ 50% = 8000 x 0.5 = 4000VA Receptacle demand load = 10,000VA + 4000VA = 14,000VA</p> <p><b>Step 4: Add all of the above totals</b> 5700VA lighting + 6000VA show window + 14,000VA receptacles = 25,700VA 25,700VA / 240V = 107A 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)

<b>6</b>	C. maximum operating current	430.6(C)
<b>7</b>	A. the building or structure disconnecting means	250.32(C)(1)
<b>8</b>	B. manual	702.4(A)(1)
<b>9</b>	D. ungrounded conductors	480.7(A)
<b>10</b>	C. FRR	728.120
<b>11</b>	D. 30kW	Refer to Table 220.55, Column C, for the number of appliances, which is 15.  The maximum demand factor for 15 ranges is 30kW per Column C.
<b>12</b>	A. insulated copper equipment grounding conductor	517.13(B)(1)(2)
<b>13</b>	D. continuous maintenance and supervision ensure that qualified persons service the installed cable tray system	392.60(A)
<b>14</b>	B. the concrete tight type	344.42(A)
<b>15</b>	A. electrically continuous with the raceway	374.18(B)
<b>16</b>	C. 175%	Table 430.52(C)(1)
<b>17</b>	C. 1 ½ inch	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.  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.
<b>18</b>	B. 8 AWG	240.21(B)(1); Table 310.16
<b>19</b>	A. lockable in the open position	450.14 mentions "lockable", and 110.25 mentions lockable in the "open position"
<b>20</b>	D. Liquid-Tight Flexible Metal Conduit	300.22(B)
<b>21</b>	C. 164 A	Table 430.247

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

44	A. irreversible compression-type connectors	250.64(C)
45	B. ¼	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 <math>32A \times 1.25 = 40A</math>.</p>
73	A. 200A	<p>First figure out primary current with <math>I = P / E</math>.  <math>I = 75,000VA / 480V = 156A</math></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 <math>156A \times 1.25 = 195A</math>.  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)

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