



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 - 1.9va x 3000 sq ft = 5700VA</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 x 0.5 = 4000VA Receptacle demand load = 10,000VA + 4000VA = 14,000VA</p> <p>Step 4: Add all of the above totals 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) |

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| 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 | 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. |
| 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 | 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. |
| 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 |

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| 22 | B. grounded | 516.23 |
| 23 | A. high-voltage switch or equivalent disconnecting means | 660.24 |
| 24 | D. Remainder over 12,500VA | Table 220.42(A) |
| 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) |

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| 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) |

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| 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) |

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| 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) |