# 2020 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 | **Step 1: Lighting**<br>T220.12 - retail - 1.9va x 3000 sq ft = 5700VA<br><br>**Step 2: Show Windows**<br>220.43(A) - 30 ft @ 200VA per ft = 6000VA<br><br>**Step 3: Receptacles**<br>T220.14(I) - 100 receptacles @ 180VA per receptacle = 18,000VA<br>First 10,000VA @ 100% per T220.44 = 10,000VA<br>Remaining @ 50% = 8000 x 0.5 = 4000VA<br>Receptacle demand load = 10,000VA + 4000VA = 14,000VA<br><br>**Step 4: Add all of the above totals**<br>5700VA lighting + 6000VA show window + 14,000VA receptacles = 25,700VA<br>25,700VA / 240V = 107A<br><br>T310.16, 75°C column - 2 AWG THW Copper would be selected to serve a 107A load.<br><br>T240.6(A) lists 100A, 110A, and 125A standard breakers to choose from.<br><br>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. |

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| **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** | B. the building or structure disconnecting means | 250.32(C)(1) |
| **8** | A. manual | 702.4(B)(1) |
| **9** | D. ungrounded conductors | 480.7(A) |
| **10** | C. FRR | 728.120 |
| **11** | B. 30W | Refer to Table 220.55, Column C, for the number of appliances, which is 15.<br><br>The maximum demand factor for 15 ranges is 30kW per Column C. |
| **12** | D. insulated copper equipment grounding conductor | 517.13(B)(1)(2) |
| **13** | A. 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** | D. electrically continuous with the raceway | 374.18(B) |
| **16** | B. 175% | Table 430.52 |
| **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 x 0.1158) + (2 x 0.0824) = 0.5122 sq-in.<br><br>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** | C. 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 220.45 |
| **25** | C. 3 | Table 220.12 |
| **26** | C. 18 inches | Table 300.5 |
| **27** | B. 15.2A | Table 430.250 |
| **28** | A. mechanical protection | 525.21(B) |
| **29** | D. closed | 368.58 |
| **30** | A. equipment grounding conductor | 348.60 |
| **31** | A. at terminal and junction locations | 760.30 |
| **32** | C. insulated equipment grounding conductor | 250.146(D) |
| **33** | B. receptacles located more than 5 1/2 ft above the floor | 406.12, Exception, (1) |
| **34** | D. 125% | 680.10 |
| **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** | C. 3X | Table 110.28 |
| **37** | A. Supply-Side Bonding Jumper | 100 |
| **38** | A. 30 | 110.26(A)(2) |
| **39** | D. mechanically connected | 314.30(B) |
| **40** | B. grounded conductor at the service | 250.104(C) |
| **41** | C. attachment plug and receptacle | 440.13 |
| **42** | D. shall not | 404.2(B) |
| **43** | A. external to | 250.94(A) |
| **44** | B. irreversible | 250.64(C) |

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| | compression-type connectors | |
| **45** | B. ¼ | 312.2 |
| **46** | A. attachment plug | 100 |
| **47** | D. voltages greater than the low-voltage contact limit | 680.23(A)(3) |
| **48** | D. 1500 | 410.103 |
| **49** | A. 50% | 210.23(A)(2) |
| **50** | C. 50 | 314.27(A)(2) |
| **51** | B. equipment grounding | 338.10(B)(2) |
| **52** | A. Over 350 kcmil – 600 kcmil copper | Table 250.66 |
| **53** | D. shall not be | 250.4(A)(5) |
| **54** | C. 80A, 90A,350A, 110A | Table 240.6(A) |
| **55** | B. A continuous white outer finish | 200.6(B) |
| **56** | A. 80 | 210.23(A)(1) |
| **57** | A. Within 6 ft of the outside edge of a water source d) in dwelling unit attic | 348.12 |
| **58** | D. damp | 404.4(B) |
| **59** | B. 6 | Table 314.16(A) |
| **60** | B. Where equipment operates with any terminal at over 150V to ground | 250.110 |
| **61** | C. 300 | 410.103 |
| **62** | C. 125% | 424.4(B) |
| **63** | A. 10 | 230.24(B) |
| **64** | D. Wet locations | 312.2 |
| **65** | D. one-family dwelling units | 334.10 |
| **66** | B. bowl of the sink | 210.8(A)(7) |
| **67** | B. 24A | Table 210.21(B)(2) |

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| **68** | C. rated current | 100 |
| **69** | C. 125 | 210.20(A) |
| **70** | C. 6AWG Copper | 242.52 |
| **71** | D. 10 | 514.8 |
| **72** | A. 40A | 430.6(A)(2) states motor overload protection is based on the FLA rating on the motor nameplate. In this case 32A. 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 x 1.25 = 40A. |
| **73** | A. 200A | First figure out primary current with I = P / E.<br>I = 75,000VA / 480V = 156A<br><br>T450.3(B) “Primary Only Protection" shows 125% of transformer rated current for primary protection with currents of 9A or more. Therefore we take 156A x 1.25 = 195A.<br><br>Next look in Table 240.6(A) to see if there's a 196A breaker, and there's not.<br><br>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."<br><br>Therefore rounding up to a 200A breaker is allowed. |
| **74** | C. 4 AWG copper | T250.122 |
| **75** | B. be permitted to be installed with conductors of a non intrinsically safe circuit. | 504.30(A)(1) Exception 2 |
| **76** | D. supply-side bonding jumper | 250.35(B) |
| **77** | B. 4 inches | 225.14(C) |
| **78** | B. shall be electrically grounded | 516.6(F) |
| **79** | A. bushing | 610.12(B) |
| **80** | B. glass-enclosed and gasketed | 530.51 |
| **81** | B. 2 AWG copper | Table 250.102(C)(1) |
| **82** | C. 20 feet | 600.32( J)(1) |

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| **83** | D. totally enclosed | 515.7(B) |
| **84** | B. 6 feet | 530.13 |
| **85** | B. 5 feet | 366.30(A) |
| **86** | A. shall not be used | 240.10 |
| **87** | B. 0.213 inches | Chapter 9, Table 5A |
| **88** | C. 180 sq-in or more | 410.23 |
| **89** | D. service-entrance equipment | 702.7(A) |
| **90** | B. 12 inches | 470.3 and 470.18(C) |
| **91** | B. 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** | C. 277V | 225.7(C) |
| **99** | D. Type MC | 230.44 |
| **100** | B. FALSE | 450.23(A) |