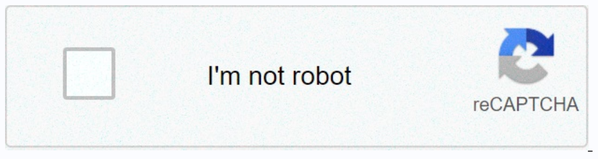

Continue

Conceptual physics chapter 21 assessment answers

1. (a) 2,75 kΩ2,75 kΩ 12{2. (a) 786Ω786Ω value of 12{786 %OMEGA } {}(b) 20.3Ω20.30 size 12{20 . 6W 29 . 6 W size 12 {29.6W} {} 7.9.11. (a) Rs =R1+R2⇒Rs≈R1R1>>R2Rs=R1+R2⇒R≈R1R1>>R2alignl { { size 12{RSub { size 8{s} } =rSub { size 8{1} } +R r { size 8{2}{1} } {} #drarrow r rsub { size 8{s} } »r rsub { size 8{1} } left (R r rsub { size 8{1} } >> r rsub { size 8{2} } right) {} } } 1R21Rp=1R1+1R2=R1+R2R1R2 size 12 { { {1} above {R r rsub { size 8{p} } {2} {1}{1} {1} } } size 8{1} } + R RSub { size 8{2} } } above {R r rSub { size 8{1} } rSub { size 8{2} } } } } } } to R= R = R 1 R 1 + R 2 ≈ R 1 R 2 R 1 = R 2 R 1 >> R 2 . R p = R 1 R 2 R 1 + R 2 = R 1 R 2 R 1 = R 2 R 1 >> R 2 . { alignl { stack { size 12 {rSub { size 8{p} } = { { RSub { size {1}8{2}{1} } } { { RSub { size 8{2} {1} } } R rSub { size 8{2} } } above {R r rsub { size 8{1} } } } } } } } } } } } } }# }#=RSub { size 8{2} } to the right (R r rSub { size 8{1} } >>RSub { size 8{2} } right) . {} } }{} 13. (c) The serial strength shall be less than one of the resistors, but must be greater than any of the resistors.18. 0 . 375 Ω 0 . 375 Ω 12{0. Yes 23 a 200 A b 10,0 V c 2,00 kW d 0,1000Ω; 80.0 A, 4.0 V, 320 W0.1000Ω; 80.0 A, 4.0 V, 320 W size 12 {0. 1000 %OMEGA; 80.0A, 4.0 V, 320 W} {}25.(a) 0,400 Ω0,400 Ω 12.{0 size. 29. (a) –0,120 V b) -1,41×10-2Ω-1,41×10-2Ω size 12{ +- 1.4110 rSup { size 8{-2} } } %OMEGA } {}(c) Negative end voltage; negative load resistance. (d) the assumption that such a cell could provide 8.50 A does not match its internal resistance. 31 . − I 2 R 2 + emf 1 − I 2 r 1 + I 3 R 3 + I 3 r 2 -emf 2 = 0 − I 2 R 2 + emf 1 − I 2 r 1 + I 2 3 R 3 + I 3 r 2 - EMF 2 = 0 size 12 { (underline {-I rSub { size 8{2} } R r rSub { size 8{3} } + emf r Add { size 8{1} } - ital I {2}{1} } r rsub { size 8{3}{3}{1} & lt;1> } + ital I rSub { size 8{3} } rSub { size 8{2} } + emf rSub { size 8{2} } = 0 }} } {} 35. I 3 = I 1 + I 2 I 3 = I 1 + I 2 size 12 (I rSub { size 8{3} } = ital I rSub { size 8{1} } + ital I rSub { size 8{2} } } } } } } } 37. emf 2 - I 2 r 2 - I 2 R 2 + I 1 R 5 + I 1 r 1 - emf 1 + I 1 R 1 = 0 emf 2 - I 2 r 2 - I 2 R 2 + I 1 R 5 + I 1 r 1 - emf 1 + I 1 R 1 = 0 size 12 { {underline { emf rSub { size 8{2} } +- I rSub { size 8{2} } rSub { size 8{2}{2}{2} } + - it{5}{1}al I rSub { size 8{1} } rSub { size 8{1} } +- emf rSub { size 8{1} } + ital I rSub { size 8{1} } r r rsub { size 8{1} } = 0 }} } {} 39. (a) I1=4.75 AI1=4.75 A size 12{I rSub { size 8{1} } =4 cdot 75 A} {}(b) I2 =-3.5 AI2 =-3.5 A size 12{I rSub { size 8{2 } } = +- 3. 5 A} {}{}(c) I3=8.25 AI3=8.25 A size 12{I rSub { size 8{3} } =8. (b) I1≠I2+I3I1≠I2+I3 size 12{I rSub { size 8{1} } <> I rSub { size 8{2} } + I rSub { size 8{3} } } }}. Accepted streams violate the connection rule. 42. 30 µA 30 µA size 12{30 µA} {} 44.1 . 98 k Ω 1 . 98 k Ω size 12{1. 25 × 10 - 4 Ω 1 . 25 × 10-4 Ω size 12{1.2510 rSup { size 8{ +-4} } % OMEGA } { } 48. (a) 3,00 MΩ3,00 MΩ size 12 {3. to see the difference) 52 15 (five digits need to see the difference) 0.99990 (five digits need to be found). 0 µA 15 . 0 µA size 12{15.0 mA} {} 54.a) 10.02 Ω10.02 Ω 12{10. 02%OMEGA } {} (c) 0.9980 or 12{10. 2,0×10-12,0×10-1 % reduction (d) 1,002 or 2,0×10-12,0×10-1 % increase(e) is not significant. 56. (a) −66.7Ω−66.7Ω 12.size{-66. (c) It is not desirable that the IGIG value of 12{I rSub { 8.{ G } } } {} is larger than ItotItot size 12{I rSub { size 8{tot } } } } {} (see Figure 21.33). You cannot achieve full-scale deformation using a current less than the sensitivity of the galvanometer.59. 1 . 56 k Ω 1 . 56 k Ω size 12{1 Ω 12.sk. Range 5 . 00 Ω to 5 . 00 k Ω range 5 . 00 Ω to 5 . 00 k Ω size 12 {Range=5. between 00 and 30 . 0 M Ω 4 . Range. between 00 and 30 . 0 M Ω 12(range 4.00 to 30. 50 mF} () () (b) 2.00 s 69.(a) 1.25 kΩ1.25 kΩ size 12{1. 73 × 10 to 2 s 1 . 73 × 10-2 s size 12{1. 33 × 10 − 3 Ω 3 . 33 × 10-3 Ω 12{3310 rSup { size 8{-3} } % OMEGA } { } 76. (a) 4,99 s b 3,87ºC3,87ºC 12.{3. 87°C} {}(c) 31.1 kΩ31.1 k sizeΩ 12{3 Ω 1. (b) a combination Ω 20-Ω 20-Ω-10-Ω resistant; (c) 20 W in each 20-Ω resistor, 40 W in a 10-Ω resistor, 64 W in a 4-Ω resistor, a total of 144W resistors, an output power of 144 W, yes, they are the same (law energy consumption); (d) 4 Ω and 3 Ω (a) and unchanged in part (b); (e) this will remain the same. 7.0.25 Ω, 0.50 Ω, no change in 9a.c b.b.c c.c d. d. d. d. I1 + I3 = I2 E1 - I1R1 - I2R2 - I1r1 = 0; - E2 + I1R1 - I3R3 - I3r2 = 0 I1 = 8/15 A, I2 = 7/15 A and I3 = -1/15 A I1 = 2/5 A, I2 = 3/5 A and I3 = 1/5 A PE1 = 18/5 W and PR1 = 24/25 W PR2 = 54/25 W, PR3 = 12/25 W. Yes, PE1 = PR1 + PR2 + PR3 R3, losses in chain 13(a) 20 mA, Figure 21.41, Figure 5.5s; b) 24 mA, Figure 21.32, 2 s Paul G. Hewitt 12th Edition Paul G. Hewitt Hewitt Hewitt