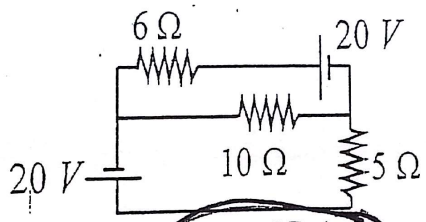
lower level

Q15. The electric current passing through R = 6 Ω equals:

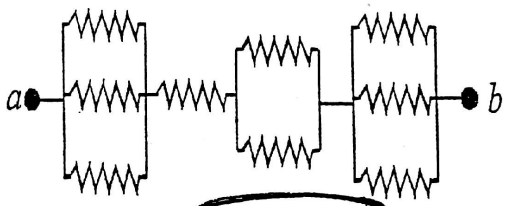


a) 0.357 A b) 0.143 A c) 3.57 A d) 1.43 A e) 4.37 A

Q16. If the length of a conductor is doubled, then the resistivity is:

a) Doubled b) Reduced to half c) Tripled d) Does not change e) All wrong

Q17. If each resistor is 3 Ω, the equivalent resistance between *a* and *b* is:



a) 81 Ω b) 19.5 Ω c) 6.5 Ω d) 27 Ω e) 65 Ω

Q8. A cylindrical wire of length L and diameter D has a resistance of 8 ohms . A second wire made of the same material has length 2L and diameter D/2. The resistance of the second wire is:

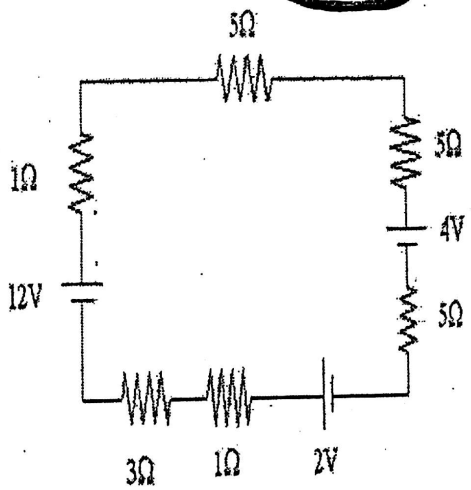
a) 1 ohm b) 2 ohms c) 8 ohms d) 32 ohms e) 64 ohms

Q9. A 0.900-V potential difference is maintained across a 1.50-m length of tungsten wire that has a radius of 4.37mm. If the resistivity of tungsten is 5.60×10^{-8} Ω.m at 20°C. The current in the wire is:

a) 6.43 A b) 7.52 A c) 2.33 A d) 1.42 A e) 7.95 A

Q10. Calculate the current in the following circuit

a) 0.436 A b) 0.625 A c) 1.125 A d) 2.463 A e) 0.5 A

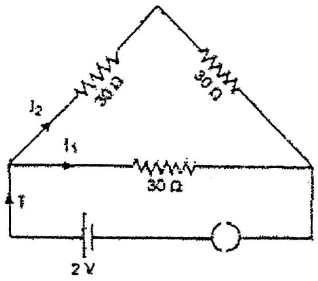


Q13. The number of electrons flow through a battery that delivers a current of 3.0 A for 12s is

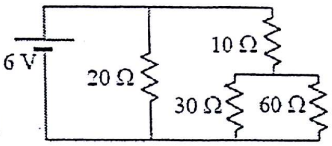
a) $4x10^{21}$ b) $2.2x10^{20}$ c) $4.8x10^{15}$ d) $36x10^{21}$ e) $9.4x10^{15}$

Q14. In the circuit shown, the current I is

a) 0.2 A b) 0.06 A c) 0.1 A d) 0.02 A. e) 0.15 A



Q6. Determine the equivalent resistance for this circuit.



a) 50 Ω **b) 12 Ω** c) 29 Ω d) 120 Ω e) 5 Ω

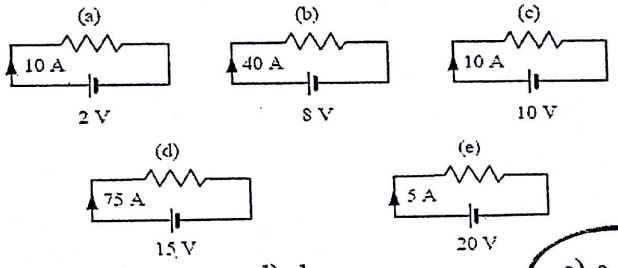
Q7. Determine the length of a copper wire that has a resistance of 0.172 Ω and cross-sectional area of 1×10^{-4} m^2. The resistivity of copper is 1.72×10^{-8} Ω · m.

a) 1000 m b) 100 m c) 10 000 m d) 10 m e) 0.1 m

Q8. Four 20-Ω resistors are connected in series and the combination is connected to a 20-V emf device. The current in any one of the resistors is:

a) 100A b) 1.0A c) 4.0A d) 5.0A **e) 0.25A**

Q9. Which one of the following circuits has the largest resistance

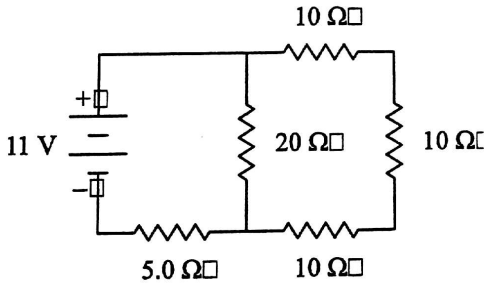


a) a b) b c) c d) d **e) e**

Q12 A 4.0 Ω resistor has a current of 3.0 A in it for 5.0 min. How many electrons pass through the resistor during this time interval?

a) 7.5×10^{21} b) 5.6×10^{21} c) 6.6×10^{21} d) 8.4×10^{21} e) 2.1×10^{21}

Q13 What is the magnitude of the potential difference across the 20 Ω resistor?



a) 3.2 V

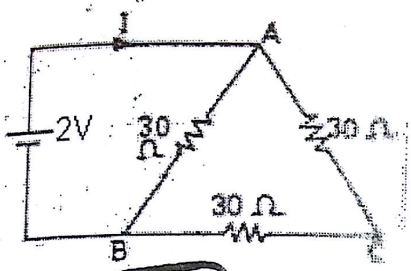
b) 7.8 V

c) 11 V

d) 5.0 V

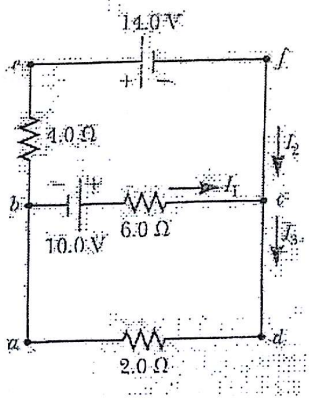
e) 8.6

Q14. In the circuit shown, the value of current I in (Amps) is:



a) 0.1 b) 0.2 c) 0.3 d) 1 e) 3

Q15. In the circuit shown, if $I_1 = 2.0$ A, $I_3 = 1.0$ A, the potential difference across the 4.0 Ω resistor (V_{be}) in Volts is :



a) 6 b) 2 c) 14 **d) 12** e) -2

Q16. A cylindrical wire has a radius r and length ℓ. If both r and l are doubled, the resistance of the wire (R) will be :

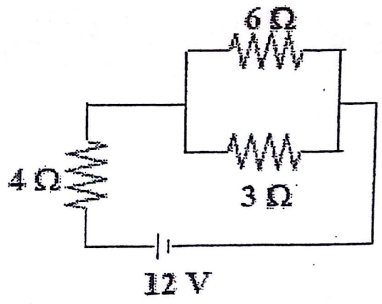
a) 4R **b) R/2** c) R d) 2R e) R/4

Q4. A copper wire has a resistance of 10 Ω. A second copper wire is twice as long and has half the diameter. Its resistance is :

a) 80 Ω b) 8 Ω c) 32 Ω d) 1 Ω e) 15 Ω

Q5. The current through the 4Ω resistor of the adjacent circuit is:

a) 0.92 A b) 3 A c) 2 A d) 6 A e) 8 A



Q6. The equivalent resistance between points a and b in the figure is:

a) 18 Ω b) 15 Ω c) 19 Ω d) 7.6 Ω e) 13 Ω