Practice Quiz 3

1) The resistance of a 100-cm wire of cross sectional area $2 \times 10^{-6} \text{ m}^2$ is 350 O. What is the resistivity of the material of this wire?
   A) $0.7 \times 10^{-4} \text{ Om}$
   B) $7 \times 10^{-4} \text{ Om}$
   C) $0.7 \times 10^{-6} \text{ Om}$
   D) $7 \times 10^{-6} \text{ Om}$
   Answer: B

2) Three 2.0-O resistors are connected across the sides of an equilateral triangle ABC as shown in Figure above. What is the equivalent resistance between any two points, AB, BC, or AC, of this circuit?
   A) 2.0 O
   B) 6.0 O
   C) 4.3 O
   D) 1.3 O
   Answer: D

3) A number of resistors are connected across points A and B as shown in Figure above. What is the equivalent resistance between points A and B?
   A) 6 O
   B) 8 O
   C) 10 O
   D) 12 O
   Answer: B
4) Five equal resistors, of value 2.0 Ω each, are connected as shown in Figure above. What is the equivalent resistance of this circuit?
A) 1.0 Ω
B) 10.0 Ω
C) 6.0 Ω
D) 0.40 Ω
Answer: A

5) A 4-Ω resistor is connected in parallel with a 12-Ω resistor and this combination is connected to a DC power supply with voltage V as shown in Figure above. If the total current in this circuit is 2 A, what is the value of voltage V?
A) 3 V
B) 6 V
C) 1.5 V
D) None of the other answers is correct.
Answer: B

6) Four resistors of values 2.0 Ω, 4.0 Ω, 3.0 Ω, and 9.0 Ω are connected across a DC source with voltage V as shown in Figure above. If the total current through this circuit is 2.0 A, what is the current through the 4-Ω resistor?
A) 1.0 A
B) 2.0 A
C) 1.3 A
D) 2.4 A
Answer: C

7) A 5.0 µF and a 7.0 µF capacitor are connected in series across an 8.0-V DC source. What is the charge on the 5.0 µF capacitor?
A) 2.0 µC
B) 4.0 µC
C) 23 µC
D) 25 µC
Answer: C
8) Four capacitors are connected as shown in Figure above. What is the charge on a 2.0-mF capacitor?
A) 68 µC
B) 90 µC
C) 120 µC
D) 180 µC
Answer: C