

1. A 10-ohm resistor has a constant current of 5 A. How many coulombs flow through this resistor in 4 minutes?
 - A) 20
 - B) 40
 - C) 200
 - D) 1200
 - E) 2400

2. Energy may be measured in:
 - A) kilowatt
 - B) joule· second
 - C) watt
 - D) watt· second
 - E) volt/ohm

3. Five cylindrical wires are made of the same material. Their lengths and radii are
 - wire 1: length E , radius r
 - wire 2: length $3E/2$, radius $r/2$
 - wire 3: length $E/2$, radius $r/2$
 - wire 4: length E , radius $r/2$
 - wire 5: length $2E$, radius $r/2$Rank the wires according to their resistances, least to greatest.
 - A) 1, 2, 3, 4, 5
 - B) 5, 4, 3, 2, 1
 - C) 1 and 2 tie, then 5, 3, 4
 - D) 1, 3, 4, 2, 5
 - E) 1, 2, 4, 3, 5

4. You wish to double the rate of energy dissipation in a heating device. You could:
 - A) double the potential difference keeping the resistance the same
 - B) double the current keeping the resistance the same
 - C) double the resistance keeping the potential difference the same
 - D) double the resistance keeping the current the same
 - E) double both the potential difference and current

5. For a cylindrical resistor made of ohmic material, the resistance does NOT depend on:
 - A) the current
 - B) the length
 - C) the cross-sectional area
 - D) the resistivity
 - E) the electron drift velocity

6. An unknown resistor dissipates 0.5 W when connected to a 3 V potential difference. When connected to a 1 V potential difference, this resistor will dissipate:
- A) 0.5 W
 - B) 0.167 W
 - C) 1.5 W
 - D) 0.056 W
 - E) none of these

Answer Key --

- 1. D
- 2. D
- 3. D
- 4. D
- 5. A
- 6. D