

Warm up set 7

Question

- 1.HRW6 28.TB.05. [119859] In the context of the loop and junctions rules for electrical circuits a junction is:
- (a) where a wire is connected to a battery
 - (b) where three or more wires are joined
 - (c) where a wire is bent
 - (d) where a wire is connected to a resistor
 - (e) where only two wires are joined

Answer:

- (b) Where three or more wires are joined

Question

2. HRW6 28.TB.18. [119872] Two wires made of the same material have the same length but different diameter. They are connected in parallel to one end of a battery. The quantity that is NOT the same for the wires is:

- (a) the electric field
- (b) the electron drift velocity
- (c) the current
- (d) the current density
- (e) the end-to-end potential difference

Answer:

(c) The current density

In effect, these two wires are resistors, with the resistance inversely proportional to the cross sectional area of the wire. Resistors in parallel divide the current, but the potential across each is equal.

$$V=IR$$

If V is kept constant, but the resistance R of the two wires is different, then current I must change.

Question

3. HRW6 28.TB.26. [119880] The emf of a battery is equal to its terminal potential difference:

- (a) only when there is no current in the battery
- (b) only when a large current is in the battery
- (c) under all conditions
- (d) under no conditions
- (e) only when the battery is being charged

Answer:

(d) Only when there is no current in the battery