

PHYS 2326 University Physics II – Class-1 (morning)

QUIZ-#2

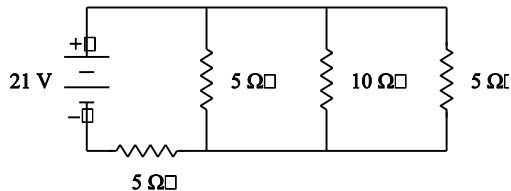
CHAPTERS: 27,28,29,30

JULY 23, 2013

1. If a mile of 24-gauge copper wire has a resistance of $0.14 \text{ k}\Omega$ and the resistivity of copper is $1.7 \times 10^{-8} \Omega \cdot \text{m}$, what is the diameter of the wire? (1 mile = 1.6 km)
 - a. 0.40 mm
 - b. 0.50 mm**
 - c. 0.63 mm
 - d. 0.80 mm
 - e. 0.25 mm

2. A light bulb is rated at 30 W when operated at 120 V. How much charge enters (and leaves) the light bulb in 1.0 min?
 - a. 17 C
 - b. 15 C**
 - c. 14 C
 - d. 13 C
 - e. 60 C

3. What is the current in the $10\text{-}\Omega$ resistor ?



- a. 0.60 A**
- b. 3.0 A
- c. 1.2 A
- d. 2.4 A
- e. 0.30 A

4. A segment of wire carries a current of 25 A along the x axis from $x = -2.0$ m to $x = 0$ and then along the y axis from $y = 0$ to $y = 3.0$ m. In this region of space, the magnetic field is equal to 40 mT in the positive z direction. What is the magnitude of the force on this segment of wire?
- a. 2.0 N
 - b. 5.0 N
 - c. 1.0 N
 - d. 3.6 N
 - e. 3.0 N
5. Two long parallel wires each carry a current of 5.0 A directed to the east. The two wires are separated by 8.0 cm. What is the magnitude of the magnetic field at a point that is 5.0 cm from each of the wires?
- a. $72 \mu\text{T}$
 - b. $48 \mu\text{T}$
 - c. $24 \mu\text{T}$
 - d. $96 \mu\text{T}$
 - e. $32 \mu\text{T}$