King Abdulaziz University	Faculty of Science	Department of Physics
PHYSICS 202: CA	Summer term 2010	Quiz#3

Answers

1. A 10 Ω resistor is connected to a potential of 6 V. The **current** passing through the resistor is:
(a) 60 A **(b)** 1.67 A **(c)** 0.6 A **(d)** 10 A **(e)** 5 A

2. A cylindrical wire of radius 10 mm has a current of 2 A. The **current density** in the wire is:
(a) 6.4×10^{3} A/m^2 **(b)** 6.4×10^{-3} A/m^2 **(c)** 2×10^{4} A/m^2 **(d)** 0.2 A/m^2 **(e)** 2 A/m^2

3. A wire of length 5 cm and cross-sectional area 2 mm^2 is connected to a potential of 12 V. If the current passing through the wire is 2 A, the **resistivity** of the wire (in SI units) is:
(a) 15 **(b)** 2.4 **(c)** 15×10^{4} **(d)** 2.4×10^{4} **(e)** 2.4×10^{-4}

4. The power dissipation rate through a 5 Ω resistor is 3.2 W, the **potential difference** across the resistor is:
(a) 16 V **(b)** 0.64 V **(c)** 4 V **(d)** 1.56 V **(e)** 1.25 V

5. The electric field inside a cylindrical wire of radius 1.2 mm is 0.1 V/m. If the current in the wire is measured to be 16 A, the **conductivity** of the wire (in SI units) is:
(a) 2.8×10^{-8} **(b)** 3.5×10^{7} **(c)** 3.5×10^{-7} **(d)** 2.8×10^{8} **(e)** 3.5×10^{2}

6. A battery delivers 0.8 W to a 5 MΩ resistor. The **number of electrons** passing through the resistor in 8 s is:
(a) 3.2×10^{8} **(b)** 3.2×10^{16} **(c)** 2×10^{8} **(d)** 2×10^{16} **(e)** 1.6×10^{-19}

7. The **direction** of the drift velocity of electrons $\mathbf{v}_d$ is:
(a) parallel to **E** **(b)** normal to **E** **(c)** 45^0 to **E** **(d)** opposite to **E** **(e)** 30^0 to **E**

8. The internal resistance of an **ideal battery** of ε=1 V is:
(a) 1 Ω **(b)** 1.5 Ω **(c)** 2 Ω **(d)** 2.5 Ω **(e)** zero

9. As shown in **Fig. 1**, the **equivalent resistance** is:
(a) 10 Ω **(b)** 15 Ω **(c)** 20 Ω **(d)** 25 Ω **(e)** 30 Ω

10. As shown in **Fig. 2**, the **potential difference across R_3** is:
(a) 12 V **(b)** 8 V **(c)** 6 V **(d)** 18 V **(e)** 3 V

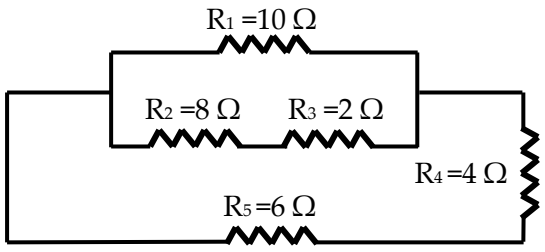

Fig. 1

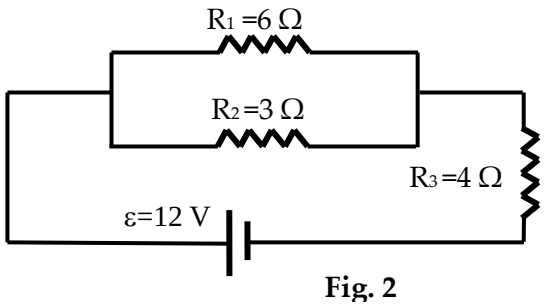

Fig. 2