United International University

School of Science and Engineering

Quiz#05; Year 2020; Semester: Fall
Course: PHY 105; Title: Physics
Full Marks: 20; Section: E; Time: 20 minutes

Name:	ID:	Date:

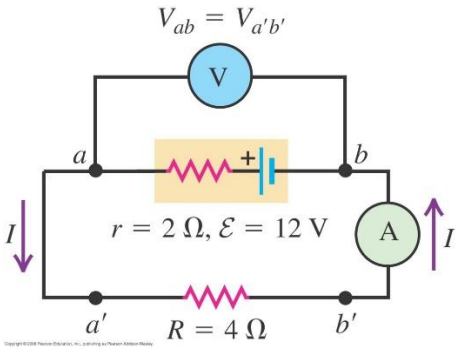
1. What is emf? What is the difference between DC and AC Current? **1**

2. What is current density? What is its unit? **0.5**

3. A 45 Ω resistor is connected to the terminals of a battery whose emf is 9 V and whose internal resistance is 2.5 Ω. Calculate (a) the current in the circuit, (b) the terminal voltage of the battery, and (c) the power dissipated in the resistor *R* and in the battery's internal resistance *r*. **2.5**

4. A 4.00 m length copper wire in a home has a diameter of 2 mm and carries a current of 10mA. The drift speed of the electrons is found as 3.75×10^{-6} m/s. Calculate the conduction electron density in copper wire. [Given, $e=1.6\text{x}10^{-19}$ C] **2.5**

5. What are voltmeter and ammeter readings in the following ckt? **1**



6. Find the currents I, I_1 ,I_2 and I_3 and the voltage V_x across 35 Ω in the circuit shown below. **2.5**