United International University

School of Science and Engineering

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

Name:	ID:	Date:

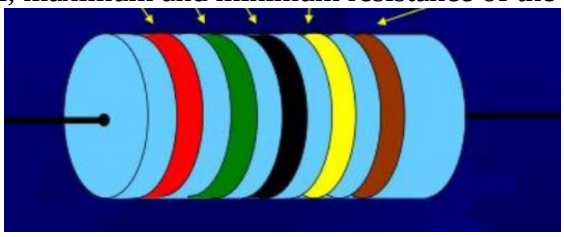
1. What is conductivity? What is the difference between resistivity and conductivity? **1**

2. What is surface charge density? What is its unit? **0.5**

3. A battery is known to have an emf of 9 volts. If a 7.9 Ω resistor is connected to the battery, the internal resistance is measured to be 3.7 Ω. What is the terminal voltage of the battery? **2.5**

4. A 7.00 m length copper wire in a home has a diameter of 6 mm and carries a current of 13mA. The electric field inside in the wire is found as 3.75×10^{-2} V/m. Calculate the resistivity of the copper wire. **2.5**

5. Find out the nominal, maximum and minimum resistance of the following resistor? **1**



6. Find the currents (i) I, $I_{1\,(10\Omega)}$, I_2 and $I_{3(8\Omega)}$ and the voltage V_x across 5 Ω, and (ii) terminal voltage of the battery in the circuit shown below. **2.5**