



Because of Today Tomorrow Will Be better

RK Academy

One step Ahead to Your Success...



WEEKLY TEST CHAPTER 3 TEST 1

CLASS: XII
SUBJECT: PHYSICS

FM: 20
TIME: 45 MIN

(1 MARK)

- Which of the following is the correct relation
a. $E = J\sigma$ b. $E = V_d/\mu$ c. $E = qF$ d. none
- The reciprocal of resistance is
a. reactance b. conductance c. mobility d. conductivity
- Slope of $V - I$ graph gives _____.
- Write dimension of conductivity?
- The resistance of 4Ω wire if stretched to double of its length is
a. 4 b. 2 c. 8 d. 16
- What is the drift velocity of electrons in a copper conducting wire of area of cross section $2 \times 10^{-7} \text{ m}^2$ and carrying a current of 2A. the number density is $9 \times 10^{28} \text{ m}^{-3}$. **(2 MARKS)**
- What is meant by relaxation time? Show that resistance of a conductor is expressed as $R = ml / ne^2 A \tau$. **(2MARKS)**
- Derive expression for drift velocity of electrons in a conductor. **(3 MARKS)**

OR

What is current density? Derive the relation between current density, electric field and conductivity

- Explain how temperature do change resistance of a conductor. Find the temperature at which the resistance of a conductor increases by 25% of its value at 27°C . the temperature coefficient of resistance is $2 \times 10^{-4} \text{ }^\circ\text{C}^{-1}$. **(3 MARKS)**
- (5 MARKS)**
 - Express current in terms of drift velocity.
 - Charge flowing through a conductor is given as $q = 3t^2 + 3t \text{ C}$. find the current flowing in the circuit at $t = 2 \text{ sec}$



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