



PHYSICS

CH: 3 CURRENT ELECTRICITY

Name: _____

Date: _____

Class: XII Sec: A ____

1. When two known resistances R and S are connected in the left and right gap of a meter bridge, the balance point is found at a distance l_1 from the zero end of the meter bridge wire. An unknown resistance X is now connected in parallel to the resistance S and the balance point is now found at a distance l_2 from the zero end of the meter bridge wire. Obtain a formula for X in terms of l_1 , l_2 and S .
2. In a meter bridge the length of the wire is 100cm. At what position will the balance point be obtained if the two resistances are in the ratio 2:3?
3. What do you mean by sensitivity of a meter bridge?
4. A potentiometer wire is 10m long and has a resistance of 18Ω . It is connected to a battery of emf 5V and internal resistance 2Ω . Calculate the potential gradient.
5. A potentiometer wire is supplied a constant voltage of 3V. A cell of emf 1.08 V is balanced by voltage drop across 216 cm of the wire. Find the total length of the wire.
6. What is meant by sensitivity of a potentiometer?
7. How can sensitivity of a potentiometer be increased?
8. Why a ten – wire potentiometer more sensitive than a four – wire potentiometer?
9. What are the advantages of Wheatstone bridge method of measuring resistance?
10. Draw a graph to show the variation of resistance of a metal wire as a function of its diameter, keeping length and temperature constant.
11. The current flowing through a conductor is 2mA at 50V and 3mA at 60 V. Is it an ohmic or non ohmic conductor?
12. Two wires of equal cross sectional area, one of copper and other of magnanin have the same resistance. Which one will be longer?
13. Why should we get the null point in the middle of the metre bridge wire?
14. A 10 m long wire of uniform cross section of 20Ω resistance is used as a potentiometer wire. This wire is connected in series with a battery of 5V, along with an external resistance of 480Ω . If an unknown emf E is balanced at 600cm of this wire, calculate (i) the potential gradient of the potentiometer wire and (ii) the value of the unknown emf E .
15. A potential difference V is applied to a conductor of length l , diameter D . how are the electric field E , the drift velocity v_d and resistance R affected when (i) V is doubled (ii) l is doubled (iii) D is doubled?