O P JINDAL SCHOOL, SAVITRINAGAR

PRACTICE PAPER-10

CLASS XII PHYSICS — TOPIC : CURRENT ELECTRICTY

Date : 08/05/20

Q1 Why are the connections between resistors in a Wheatstone or meter bridge made of thick copper strips.

Q2 Why manganin wire is used for making wire of meter bridge or potentiometer.

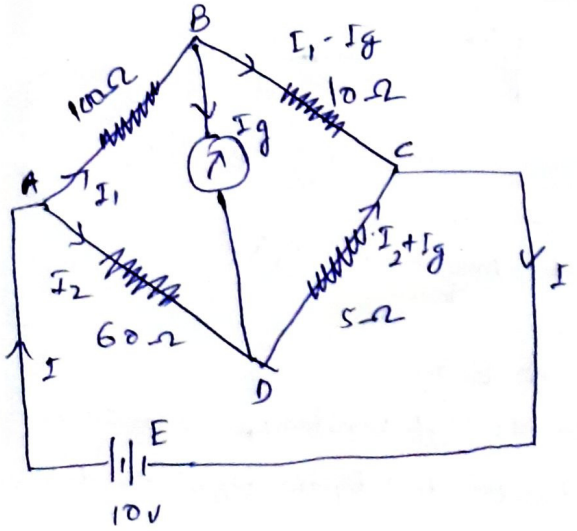
Q3 Write the factors on which the sensitivity of Wheatstone bridge depends. Write the conditons for most sensetive.

Q4 Write the principle on which (Statements)

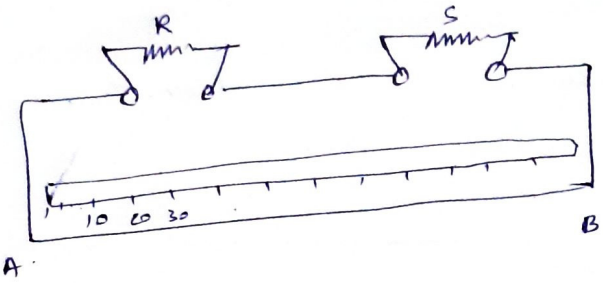
(1) meter bridge works

(2) Potentiometer works

Q5 The four arms of a wheatstone bridge have following resistance AB = 100Ω, BC = 10Ω, CD = 5Ω and DA = 60Ω find the current on each branch of circuit.

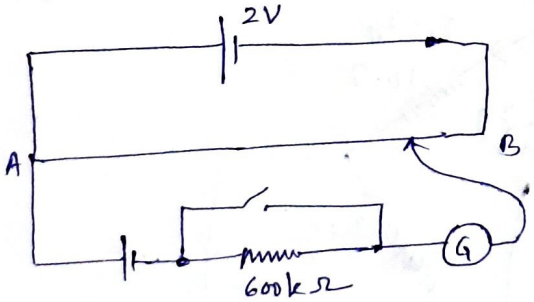


Q6 In a meter bridge the null point is found at a distance of 33.7 cm from A. If now a resistance of 12Ω is connected in parallel with S, the null point occurs at 51.9 cm. Determine the values of R and S



Q 7 State the working principle of potentiometer, explain with help of circuit diagram how the potentiometer is using to compare the emf of two primary cell.

Q 8 Figures shows a potentiometer with a cell of 2V and internal resistance 0.4Ω maintaining a potential drop across the resistor with wire AB. A standard cell which maintains a constant emf of 1.02V gives a balance point at- 67.3 cm length of the wire. To ensure very low currents drawn from the standard cell a very high resistance of 600kΩ is put in series with it, which is shorted closed to the balance point. The standard cell is then replaced by a cell of unknown emf ℰ and the balance point found similarly turns out to be at 82.3 cm length of the wire.



Q1 What is the value of ℰ ?

Q2 What purpose does the high resistance of 600kΩ have ?

Q3 Is the balance point affected by the high resistance ?

Q4 Is the balance point affected by the internal resistance of driver cell.

Q5 Would the method work in the above situation if the driver cell of the potentiometer had an emf of 1.1V instead of 2V.

Q6 Would the circuit work well for determining an extremely small emf, say of the order of a few mV.