Ans: If four resistance are joined in series so as to form a loop, connecting a battery across two junctions and a galvanometer across the other two junctions, the circuit is called 'wheatstone bridge' circuit.

Q #13(a) This circuit is used to determine the value of an unknown resistance X by comparison with three resistors R_1, R_2 and R_3, whose resistances can be varied. For each setting, the resistances of each resistor is precisely known. With keys K_1 and K_2 closed, these resistors are varied until the current is the galvanometer is zero. The bridge is then said to be balanced. In this condition: $\frac{R_1}{R_2} = \frac{R_3}{R_4}$

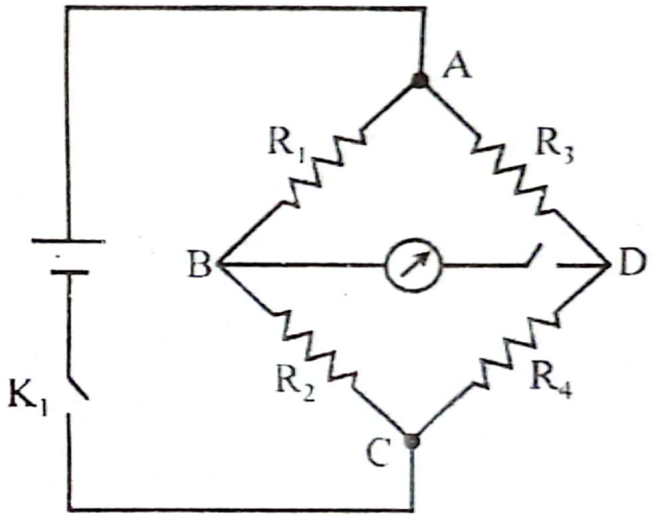

Fig 15.3

If $X = R_4$ = then X can be calculated.

Application: Slide-wire bridge (or meter bridge) and post office box are two important applications of wheatstone bridge, used for the determination of unknown resistance.