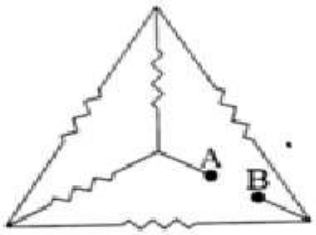
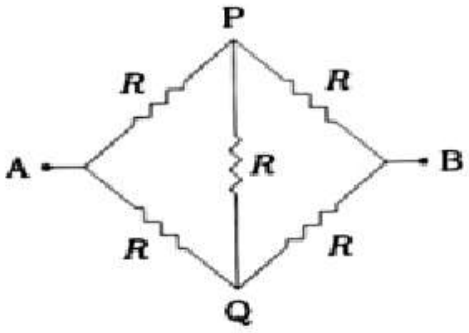
Q 19

If each of the resistances in the network shown in the figure is R, what is the resistance between the terminals A and B? (1978)



Sol. Given circuit is redrawn in the figure after moving out the terminals A and B from inside the triangle.



It is a balanced Wheatstone bridge. Hence, resistance in the branch PQ can be removed without affecting the effective resistance of the circuit. Hence, the

circuit has two branches, APB and AQB, each of resistance $2R$, connected in parallel. Thus, the effective resistance between A and B is

$$R_{AB} = (2R) \parallel (2R) = R.$$

Ans. R ⊡