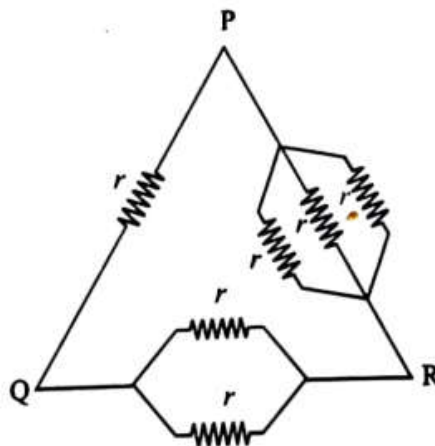


Q 02

Six equal resistances are connected between points P, Q and R as shown in figure. Then net resistance will be maximum between : [Online April 25, 2013]



- (a) P and R (b) P and Q
 (c) Q and R (d) Any two points

answer

(b) Resistance between P and Q

$$r_{PQ} = r \parallel \left(\frac{r}{3} + \frac{r}{2} \right) = \frac{r \times \frac{5}{6}r}{r + \frac{5}{6}r} = \frac{5}{11}r$$

Resistance between Q and R

$$r_{QR} = \frac{r}{2} \parallel \left(r + \frac{r}{3} \right) = \frac{\frac{r}{2} \times \frac{4}{3}r}{\frac{r}{2} + \frac{4}{3}r} = \frac{4}{11}r$$

Resistance between P and R

$$r_{PR} = \frac{r}{3} \parallel \left(\frac{r}{2} + r \right) = \frac{\frac{r}{3} \times \frac{3}{2}r}{\frac{r}{3} + \frac{3}{2}r} = \frac{3}{11}r$$

Hence, it is clear that r_{PQ} is maximum