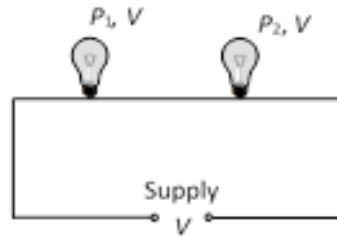
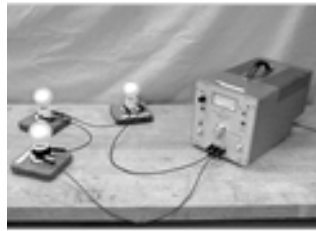


## 1. Series combination



(i) Total power consumed

$$P_{\text{total}} = P_1 + P_2 + \dots$$

(ii) If 'n' bulbs are identical,

$$P_{\text{total}} = nP$$

(iii)

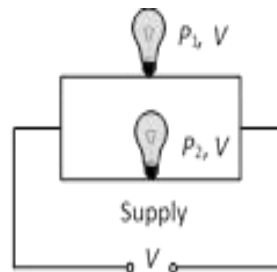
$$P_{\text{consumed}}(\text{Brightness}) \propto V \propto R \propto \frac{1}{P_{\text{rated}}}$$

i.e. in series combination bulb of lesser wattage will give more bright light and p.d. appeared across it will be more.

## 2. Parallel combination

(i) Total power consumed

$$P_{\text{total}} = P_1 + P_2 + P_3 + \dots + P_n$$



(ii) If 'n' identical bulbs are in parallel.

$$P_{\text{total}} = nP$$

(iii)

$$P_{\text{consumed}}(\text{Brightness}) \propto PR \propto I \propto \frac{1}{R}$$

i.e. in parallel combination, bulb of greater wattage will give more bright light and more current will pass through it.