

Q 13

An electric bulb is rated 220 volt - 100 watt. The power consumed by it when operated on 110 volt will be [2006]
(a) 75 watt (b) 40 watt (c) 25 watt (d) 50 watt

(c) The resistance of the bulb is

$$R = \frac{V^2}{P} = \frac{(220)^2}{100}$$

The power consumed when operated at 110 V is

$$P = \frac{(110)^2}{(220)^2 / 100} = \frac{100}{4} = 25 \text{ W}$$