

- 7.7** The output of a step-down transformer is measured to be 24 V when connected to a 12 watt light bulb. The value of the peak current is
- (a) $1/\sqrt{2}$ A.
 - (b) $\sqrt{2}$ A.
 - (c) 2 A.
 - (d) $2\sqrt{2}$ A.

7. For the given step-down transformer,

$$V_{\text{out}} = 24 \text{ V (RMS value)}$$

$$P_s = 12 \text{ W}$$

$$\therefore P_s = V_{\text{out}} I_s$$

$$\Rightarrow I_s = \frac{12}{24} \Rightarrow \frac{1}{2} \text{ A (RMS value)}$$

$$\therefore I_{\text{max}} = (\sqrt{2}) I_{\text{rms}}$$

$$= \sqrt{2} \left(\frac{1}{2} \right) \Rightarrow \boxed{\frac{1}{\sqrt{2}} \text{ A}} \Rightarrow \text{Option (a) is answer.}$$