24 An alternating potential difference $V = V_0 \sin(\omega t)$ is applied across a resistor in a circuit, causing a current $I = I_0 \sin\omega t \; to$ flow in the resistor . The mean power dissipated in the resistor is

A $V_0 I_0 \sqrt{2}$ **B** $\frac{V_0 I_0}{2}$ **C** $\frac{V_0 I_0}{\sqrt{2}}$ **D** zero