69. (a) The energy stored in the capacitor is given by $U_E = q^2/2C$. Since q is a periodic function of t with period T, so must be U_E. Consequently, U_E will not be changed over one complete cycle. Actually, U_E has period $T/2$, which does not alter our conclusion.

(b) Similarly, the energy stored in the inductor is $U_B = \frac{1}{2}i^2L$. Since i is a periodic function of t with period T, so must be U_B.

(c) The energy supplied by the generator is

$$P_{\text{avg}}T = (I_{\text{rms}}\mathcal{E}_{\text{rms}}\cos\phi)T = \left(\frac{1}{2}T\right)\mathcal{E}_m I\cos\phi$$

where we substitute $I_{\text{rms}} = I/\sqrt{2}$ and $\mathcal{E}_{\text{rms}} = \mathcal{E}_m/\sqrt{2}$.

(d) The energy dissipated by the resistor is

$$P_{\text{avg,resistor}}\,T = (I_{\text{rms}}V_R)T = I_{\text{rms}}(I_{\text{rms}}R)T = \left(\frac{1}{2}T\right)I^2R\ .$$

(e) Since $\mathcal{E}_m I\cos\phi = \mathcal{E}_m I(V_R/\mathcal{E}_m) = \mathcal{E}_m I(IR/\mathcal{E}_m) = I^2R$, the two quantities are indeed the same.