

Chapter 12

Inductors

12.1 Magnetic energy

12.2 See text

12.3 (a) Place the inductor in parallel with the light bulb, (b) with the metal bar inserted into the inductor, its impedance will increase, forcing more current to flow through the light bulb.

12.4 It doubles

12.5 (a) 4.05Ω , (b) $64.5 \mu\text{H}$, (c) 8.11Ω , (d) 1.85 A , (e) zero, (f) infinity

12.6 The energy associated with the inductor is 4 mJ (i.e., $4 \times 10^{-3} \text{ J}$), much greater than 10^{-12} J

12.7 16.6 mH

12.8 The maximum voltage across the inductor