

- The current in a certain AC circuit is independent of the frequency at a given voltage. Which combination of components is most likely to comprise the circuit?
  - A) resistors only
  - B) inductors only
  - C) capacitors only
  - D) a combination of inductors and resistors
  - E) a combination of inductors and capacitors
- A battery is used to drive a circuit. (Batteries are DC.) After a certain amount of time, the current is zero amperes. When the same circuit is driven by a high frequency AC alternator, there is a steady AC current. Which combination of components is most likely to comprise the circuit?
  - A) resistors
  - B) inductors
  - C) capacitors
  - D) a combination of inductors and resistors
  - E) a combination of inductors and capacitors
- Which components act to oppose *changes* in the current in a circuit?
  - A) resistors
  - B) capacitors
  - C) inductors
  - D) both resistors and inductors
  - E) both capacitors and resistors
- When the frequency of an AC circuit is increased (starting at low frequency, going to high frequency) at constant voltage, the current first increases and then decreases. Which combination of components is most likely to comprise this circuit?
  - A) resistors only
  - B) inductors only
  - C) capacitors only
  - D) a combination of inductors and resistors
  - E) a combination of inductors and capacitors
- Which one of the following graphs shows how the inductive reactance (impedance) varies with frequency? (For an inductor, the reactance  $X$  also acts as an impedance  $Z$ . The formula is  $X_L = Z_L = 2\pi fL$ .)

