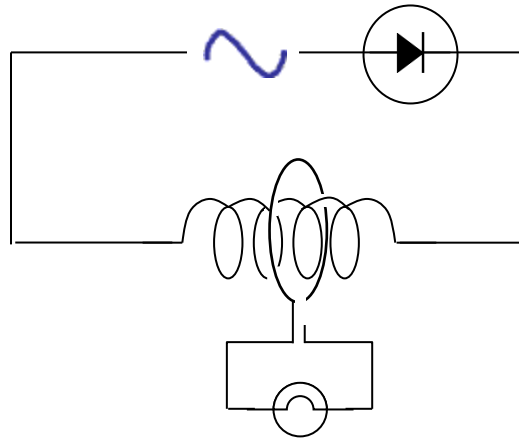


- 23** A circuit containing a circular loop of wire connected to a low power light bulb is positioned around a solenoid connected to a sinusoidal AC source and a diode as shown in the diagram below.



Which of the following statements is true?

- A** The light bulb does not light up at all because the diode prevents current from flowing and does not produce any magnetic flux in the solenoid.
- B** The light bulb does not light up at all because the magnetic flux linkage through the loop does not reverse its direction.
- C** The light bulb lights up because the magnetic flux linkage through the loop reverses its direction every cycle.
- D** The light bulb lights up because the magnetic flux linkage through the loop varies with time.