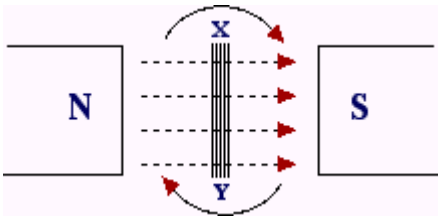
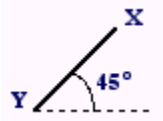
Name: _____ Practice Ph12 5-3

1. What is the EMF induced between the ends of a 12 cm wire which is moved at 84 m/s at 90° to a magnetic field of 4.5×10^{-3} T caused by a current of 5.2 A in a solenoid?
   A. 4.5×10^{-2} V
   B. 6.0×10^{-20} V
   C. 2.8×10^{-3} V
   D. 4.5 V

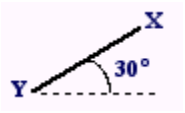
2. Which of the following is generated by an electric field that is changing with time?
   A. direct current
   B. uniform current
   C. changing magnetic field
   D. permanent magnetic field

3. 

The above diagram shows the top of a rectangular coil which is rotated clockwise at a constant rate between two magnetic poles. In which of the following positions will the emf induced <u>across the coil</u> be maximum?

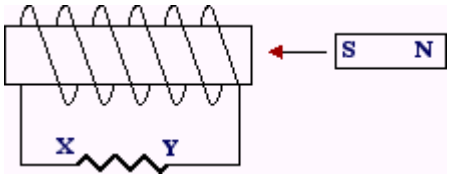
A. 

B. 

C. 

D. 

4. When the magnet is moved to the left towards the inside center of the coil the current <u>through the resistor</u> is

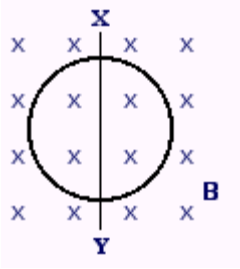


   A. from Y to X
   B. from X to Y
   C. alternating
   D. zero

5. Which of the following is a correct unit for magnetic flux?
   A. Tesla
   B. Newtons/Coulomb
   C. Tesla meter^2
   D. Volts

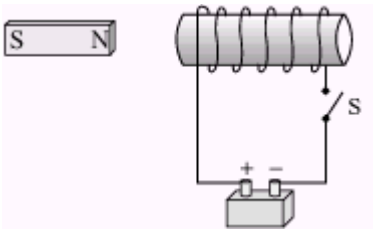
6. The voltage induced when a coil moves across a magnetic field is determined by?
   A. the change in the magnetic flux.
   B. the number of turns in the coil.
   C. the current in the coil.
   D. the number of turns and the rate of change of magnetic flux.

7. The diagram below shows a singular circular coil of wire in a constant, uniform magnetic field B. In the position shown, the magnetic flux through the coil is 4.5 x 10^{-4} Wb. If the coil now rotates 90° about axis XY in a time of 0.125 s, what average EMF is generated between the ends of the coil during that time?



   A. 3.6 x 10^{-3} V
   B. zero
   C. 5.6 x 10^{-5} V
   D. 9.0 x 10^{-4} V

8. A bar magnet is at rest, next to a fixed coil. When switch S is closed, the bar magnet will move



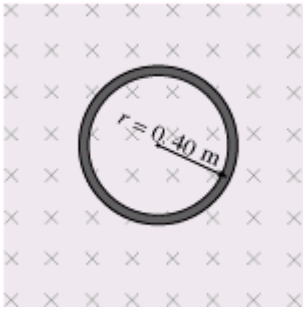
   A. down the page.
   B. to the left.
   C. to the right.
   D. up the page.

9. The circular loop of wire shown below has an area of 0.40 m^2 and is in a 0.60 T magnetic field. This field is increased to 1.40 T in 0.25 s.

Determine the emf produced in the loop and the direction of current.

	Emf (V)	Direction of Current
A.	1.3	counter-clockwise
B.	1.3	clockwise
C.	3.2	counter-clockwise
D.	3.2	clockwise

10. A coil of wire containing 50 loops is lying on a flat surface in a 0.60 T magnetic field pointing directly into the surface.



The magnetic field then changes to a value of 0.10 T in the opposite direction in 2.10 s. What is the average emf induced in the coil during the time that the magnetic field was changing?