Standardized Test Prep

MULTIPLE CHOICE

1. Which of the following statements best describes the domains in unmagnetized iron?

A. There are no domains.
B. There are domains, but the domains are smaller than in magnetized iron.
C. There are domains, but the domains are oriented randomly.
D. There are domains, but the domains are not magnetized.

2. Which of the following statements is most correct?

F. The north pole of a freely rotating magnet points north because the magnetic pole near the geographic North Pole is like the north pole of a magnet.
G. The north pole of a freely rotating magnet points north because the magnetic pole near the geographic North Pole is like the south pole of a magnet.
H. The north pole of a freely rotating magnet points south because the magnetic pole near the geographic South Pole is like the north pole of a magnet.
J. The north pole of a freely rotating magnet points south because the magnetic pole near the geographic South Pole is like the south pole of a magnet.

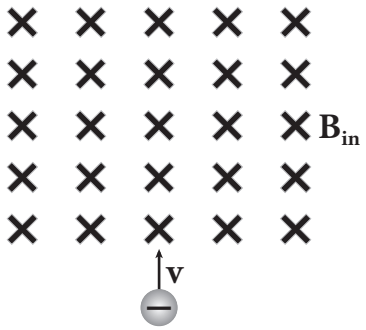
3. If you are standing at Earth's magnetic north pole and holding a bar magnet that is free to rotate in three dimensions, which direction will the south pole of the magnet point?

A. straight up
B. straight down
C. parallel to the ground, toward the north
D. parallel to the ground, toward the south

4. How can you increase the strength of a magnetic field inside a solenoid?

F. increase the number of coils per unit length
G. increase the current
H. place an iron rod inside the solenoid
J. all of the above

Use the diagram below to answer questions 5–6.



5. How will the electron move once it passes into the magnetic field?

A. It will curve to the right and then continue moving in a straight line to the right.
B. It will curve to the left and then continue moving in a straight line to the left.
C. It will move in a clockwise circle.
D. It will move in a counterclockwise circle.

6. What will be the magnitude of the force on the electron once it passes into the magnetic field?

F. qvB
G. $-qvB$
H. $\frac{qv}{B}$
J. $BI\ell$

7. An alpha particle ($q = 3.2 \times 10^{-19}$ C) moves at a speed of 2.5×10^{6} m/s perpendicular to a magnetic field of strength 2.0×10^{-4} T. What is the magnitude of the magnetic force on the particle?

A. 1.6×10^{-16} N
B. -1.6×10^{-16} N
C. 4.0×10^{-9} N
D. zero