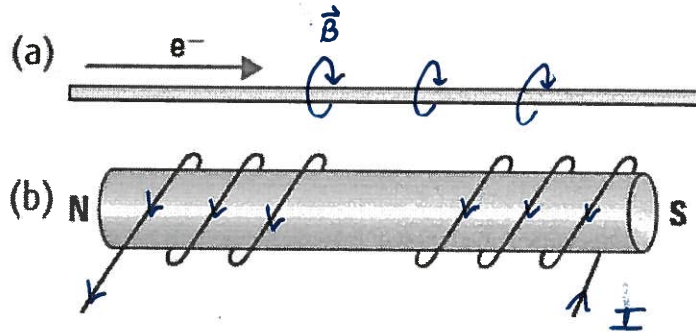
KEY

First Name:_____ Last Name:_____

L12 – Worksheet – Magnetic Forces and Fields

Textbook Questions

Q1: Indicate the direction of the magnetic field lines and the direction of the current in the wire, as required.

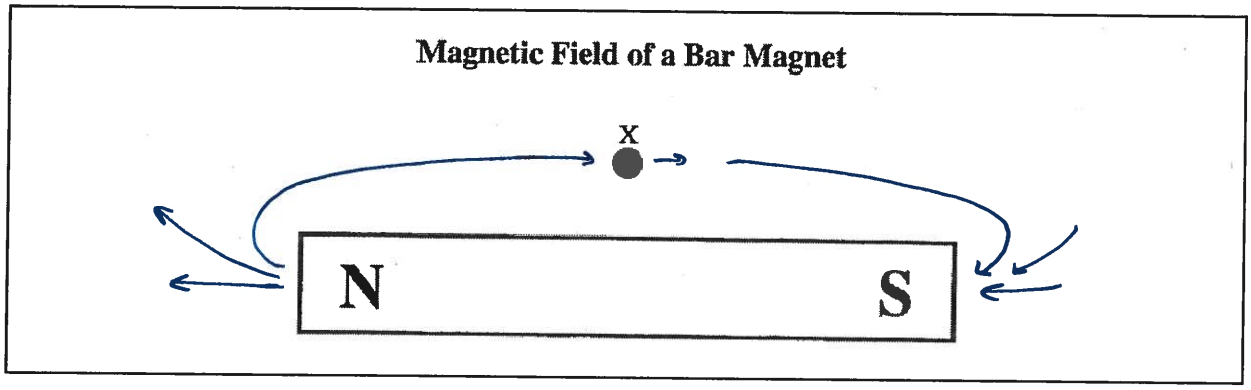


Textbook Questions

None

Diploma Worksheet Questions – Magnetic Forces and Fields (Bar Magnets)

Use the following information to answer Q231:



Q231: The direction of the magnetic field at point **X** is toward the

a. Bottom of the page
b. Right of the page
c. Left of the page
d. Top of the page

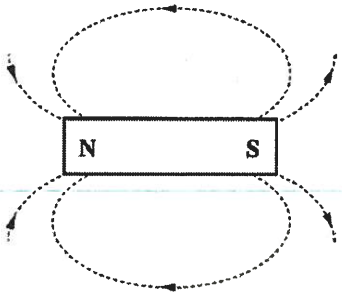
KEY

Q232: Magnets can be produced when small magnetic regions in a metal line up their poles. These magnetic regions are called magnetic

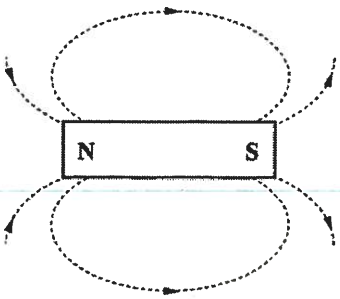
a. Domains
b. Fields
c. Atoms
d. Areas

Q233: Which of the following diagrams illustrates the magnetic field surrounding a bar magnet?

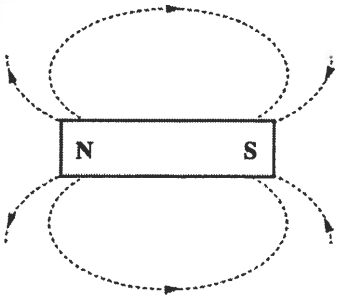
A.



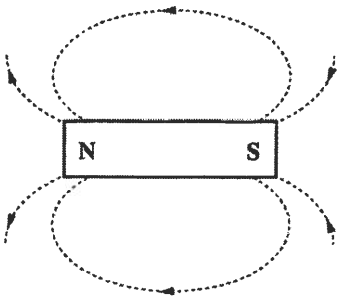
B.



C.



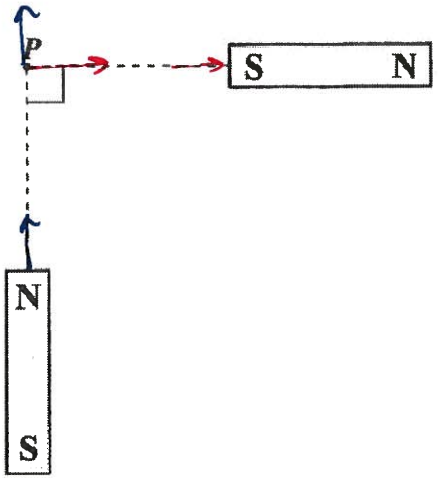
D.



Key

Use the following information to answer Q234:

Two bar magnets of equal magnetic strength are placed as shown below. The point ***P*** is the same distance from each of the magnets.



Q234: The direction of the magnetic field at ***P*** due to the two bar magnets is

A. 

B. 

C. 

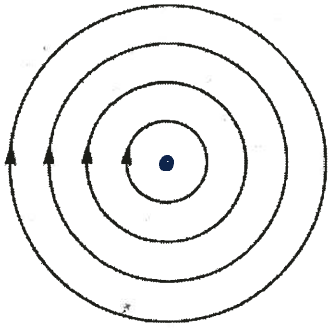
D. 

KEY

Diploma Worksheet Questions – Magnetic Forces and Fields (First Hand Rule)

#236,237,238,241,242,244,246

Use the following information to answer Q236:



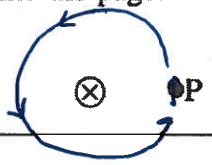
The diagram represents a field pattern.

Q236: The field represented is the

a. Electric field around a point charge
b. Electric field above a charged plate
c. Magnetic field around a straight current-carrying wire
d. Magnetic field at the center of a circular loop carrying an electric current

Use the following information to answer Q237:

The symbol ⊗ in the diagram represents a positive current-carrying wire with current going into the page.



Don't know why this is here. Old question.

Current is movement of negative charges... ALWAYS

All new diploma questions deal with moving electrons.

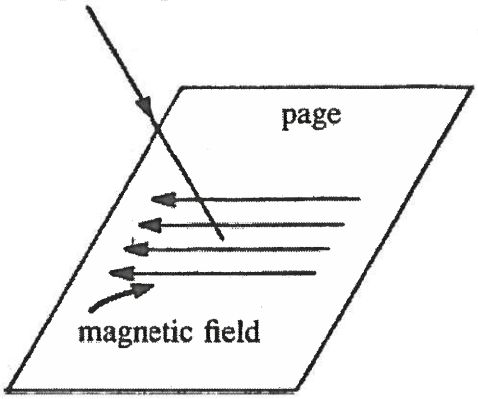
Q237: The direction of the magnetic field at point P is

a. Left
b. Right
c. Up
d. Down

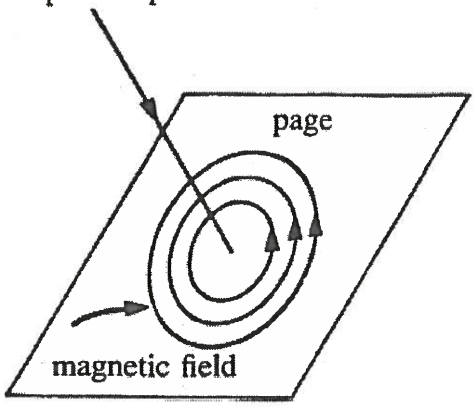
KEY

Q238: If a proton were fired into the center of a page, which diagram would represent the appearance of its magnetic field?

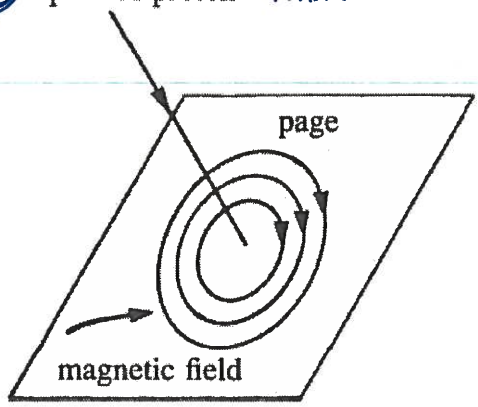
A. path of proton



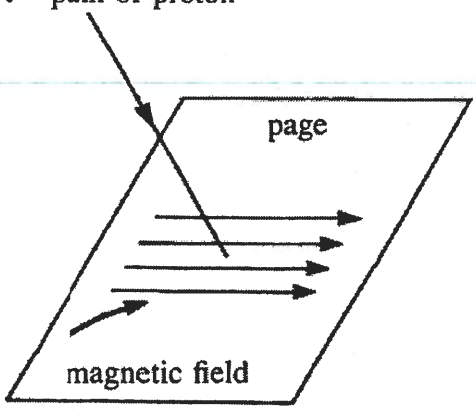
B. path of proton



C. path of proton R.H.R



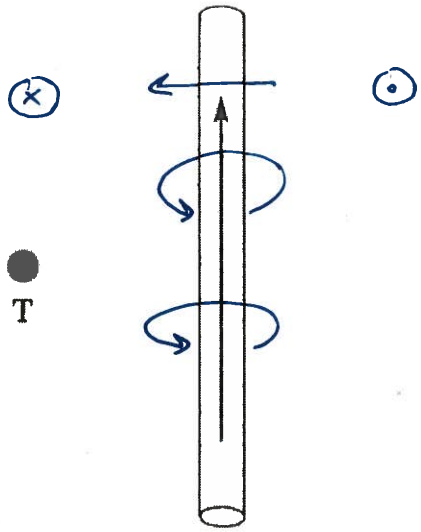
D. path of proton



KEY

Use the following information to answer Q241:

Magnetic Field of a Current-Carrying Wire



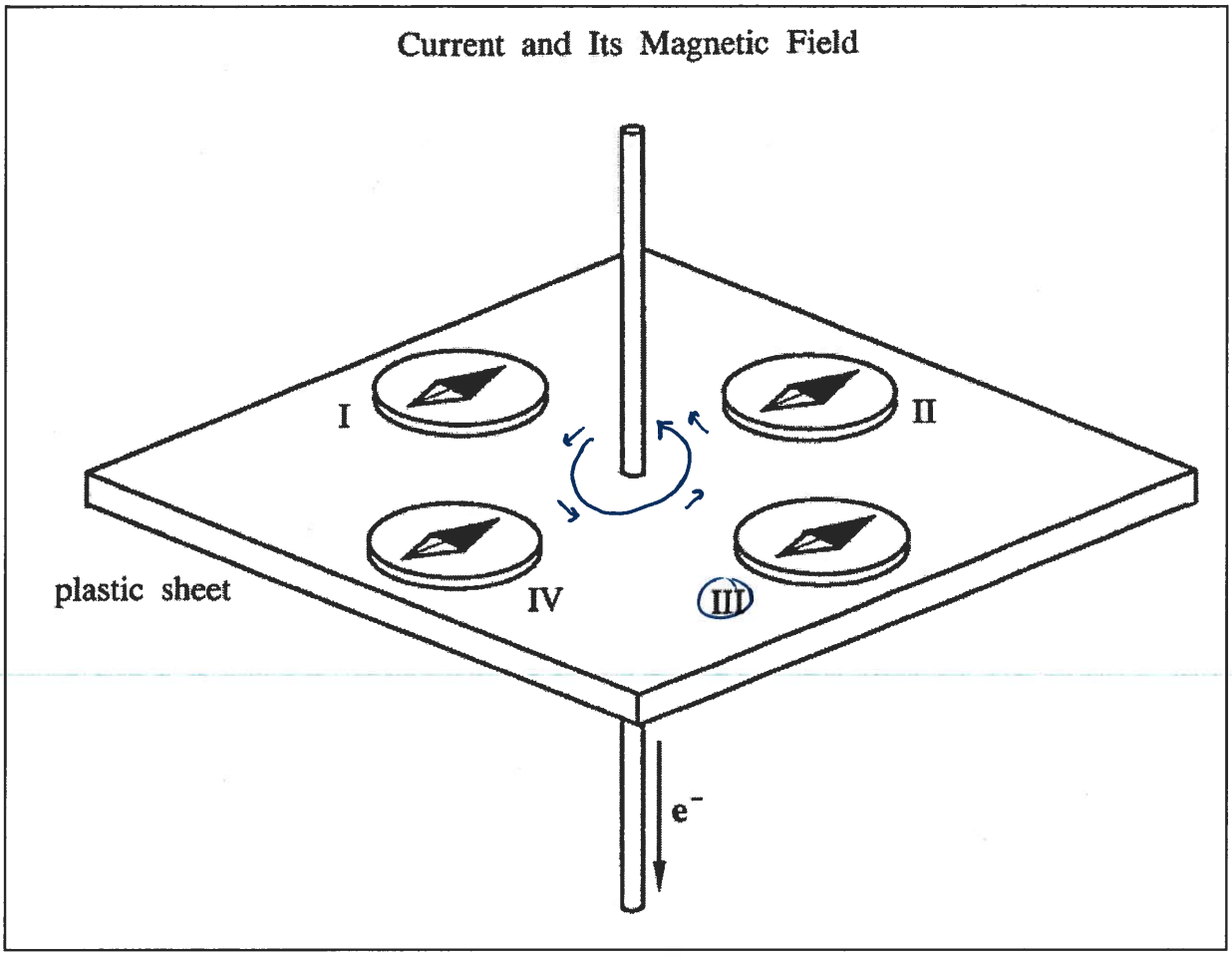
The arrow shows the direction of the electron flow.

Q241: The direction of the magnetic field at point T is

a. To the left
b. To the right
c. Into the page
d. Out of the page

KEY

Use the following information to answer Q242:



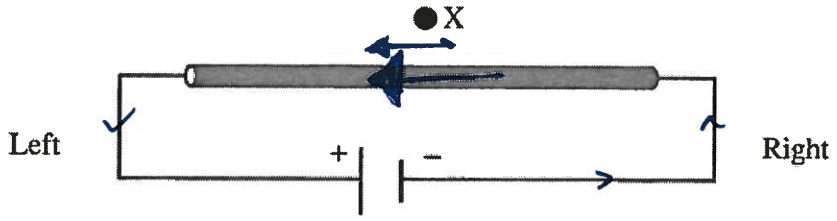
Q242: If the effects of the Earth's magnetic field are ignored, which compass needle is oriented correctly?

a. I
b. II
c. III
d. IV

Key

Use the following information to answer Q244:

Magnetic Field of an Electric Current



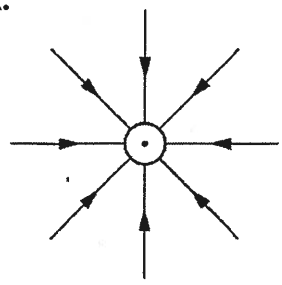
A current is present in a piece of copper rod.

Q244: The direction of the magnetic field at point X is

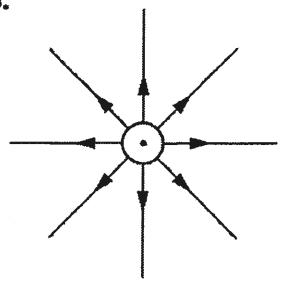
a. Out of the page
b. Into the page
c. To the right
d. To the left

Q246: Which of the following diagrams **best** illustrates the magnetic field near a wire that carries an electron current out of the plane of the page?

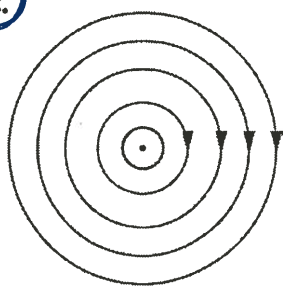
A.



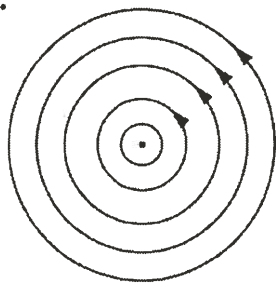
B.



C.



D.



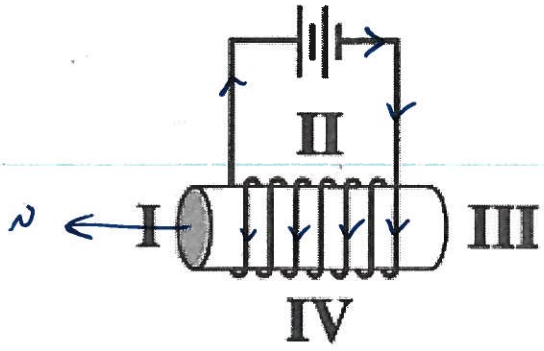
Key B

Diploma Worksheet Questions – Magnetic Forces and Fields (Second Hand Rule)

Q249: If the direction of the electron flow through the coils of an electromagnet is reversed, the electromagnet will

a. Not be affected
b. Decrease in strength
c. Have its polarity reversed — North end will flip.
d. Lose its magnetic properties

Q250: The north pole of the solenoid shown below is at position

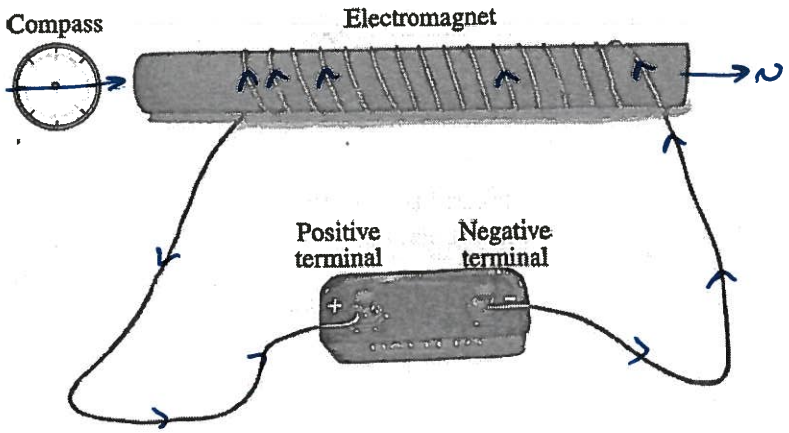


a. I
b. II
c. III
d. IV

KEY

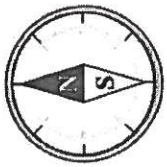
Use the following information to answer Q251:

The graphic below shows a compass to the left of an electromagnet. The compass needle is not visible on this diagram.



Q251: Which of the following diagrams represents the orientation of the compass needle in this situation?

A.



B.

C.

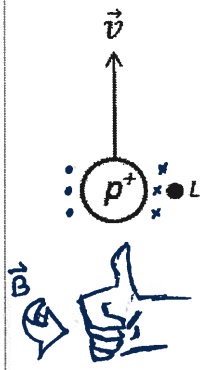
D.

KEY

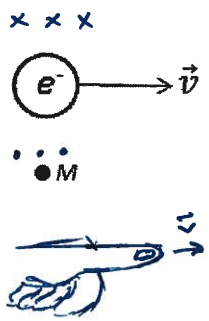
Challenge Questions

For Q1 though Q8, use the numerical response direction numbers to indicate the direction of the appropriate electric/magnetic field at the specified point, as instructed in each question.

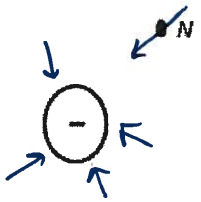
Q1 - $\vec{B}$



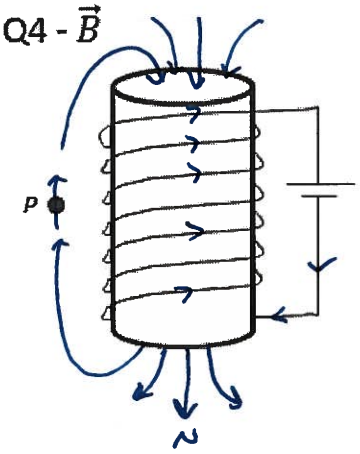
Q2 - $\vec{B}$



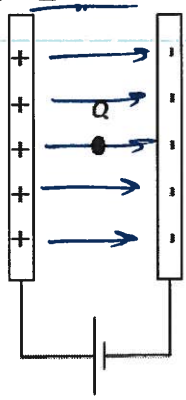
Q3 - $\vec{E}$ electric



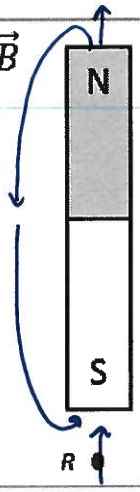
Q4 - $\vec{B}$



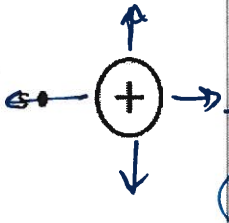
Q5 - $\vec{E}$ electric



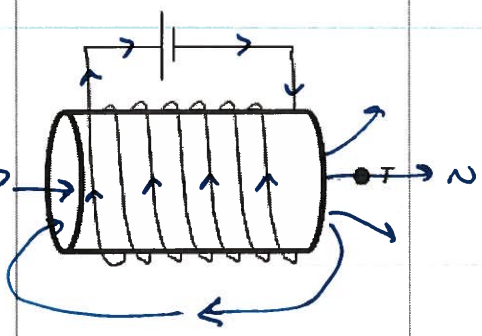
Q6 - $\vec{B}$



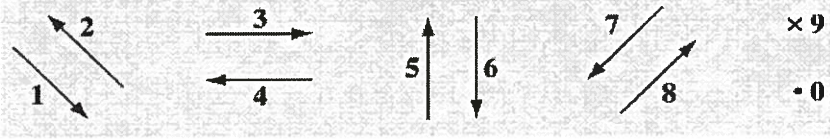
Q7 - $\vec{E}$ electric



Q8 - $\vec{B}$



Directions

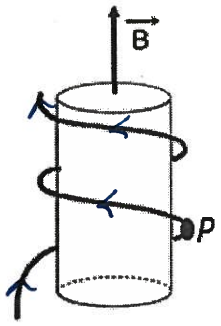
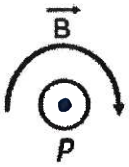
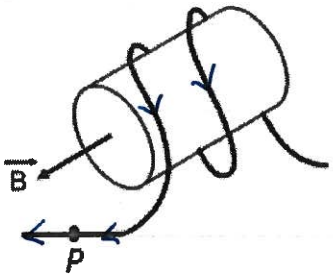
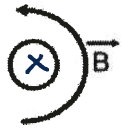


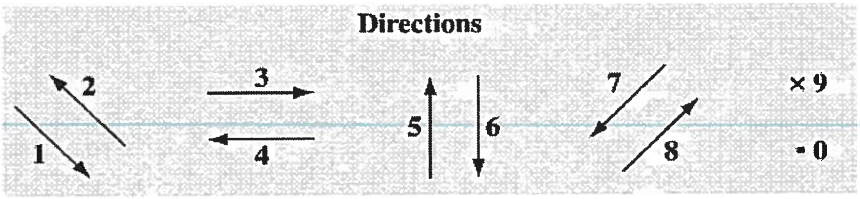
Q1: 9 Q2: ∅ Q3: 7 Q4: 5

Q5: 3 Q6: 5 Q7: 4 Q8: 3

KEY

For Q9 through Q12, use the numerical response direction numbers to indicate the direction of the appropriate current.

Q9 - *Current*	Q10 - *Current*	Q11 - *Current*	Q12 - *Current*
			



Q9: Ø **Q10:** Ø **Q11:** 4 **Q12:** 9

Cumulative Review from Previous Units

None