

NAME  
SCHOOL

INDEX NUMBER  
DATE

## MAGNETIC EFFECT OF AN ELECTRIC CURRENT

1. 1995 Q14 P1

The force on a conductor carrying a current in a magnetic field can be varied by changing, among others, the magnitude of the current and the magnetic field strength. Name two other factors that can be changed to vary the force.

(2 marks)

.....  
.....  
.....

2. 1996 Q13 P1



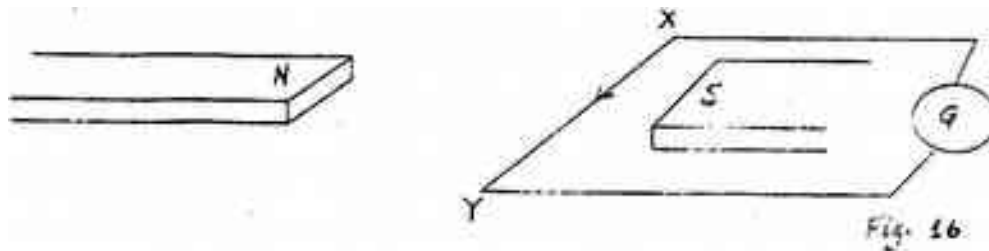
Figure 4 shows two parallel current conductors A and B placed close to each other. The direction of the current is into the plane of the paper.

On the same figure;

- (i) Sketch the magnetic field pattern (1 mark)
- (ii) Indicate the force  $F$  due to the current on each conductor (1 mark)

3. 1999 Q33 P1

Figure 16 shows a wire XY at right angles to a magnetic field. XY is part of circuit containing a galvanometer.

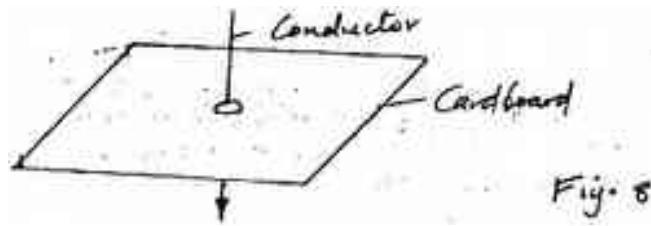


In which direction is XY is moved

.....

4. 2000 Q13 P1

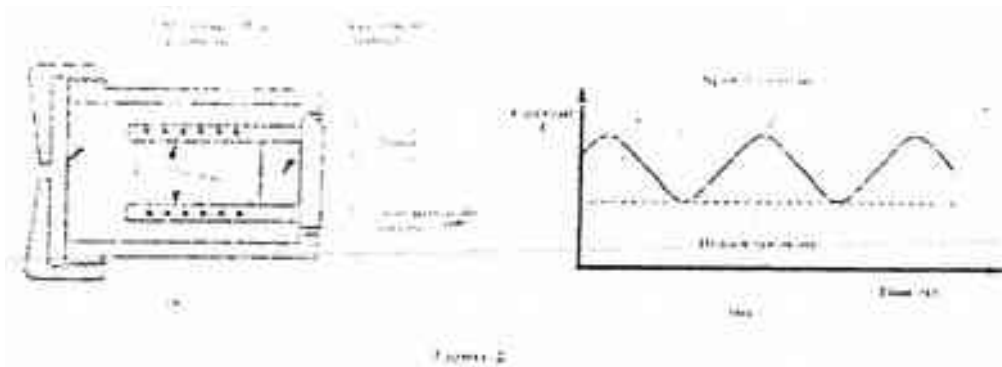
In fig 8 the arrow indicates the directions of the current in the conductor.



Sketch on the diagram the magnetic field pattern due to the current.

5. 2001 Q2a P2

a) Fig 1 (a) shows the circuit of a simple telephone receiver. When the telephone is lifted, a steady current flows through the solenoids. When a person speaks into the microphone on the other side, a varying current flows. These two currents are shown in fig. 1(b).



i) State the reason why solenoids are wound in opposite directions around the soft-iron core pieces as shown.

.....  
.....  
.....

ii) Explain how the speech current from the microphone is converted into sound in the receiver.

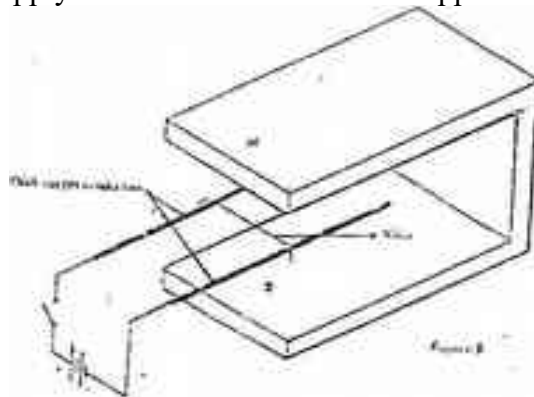
.....  
.....  
.....  
.....  
.....  
.....  
.....

iii) State and explain the effect of replacing the soft iron core pieces with steel core pieces.

.....  
 .....  
 .....  
 .....  
 .....  
 .....  
 .....

6. **2002 Q13 P1**

Fig. 8 shows two parallel thick copper conductors connected to a D.C. power supply. A rider made from a thin copper wire is placed on the conductors.

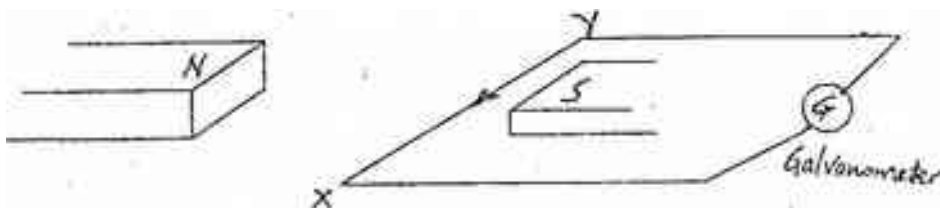


State and explain what is observed on the rider when the switch is closed.

.....  
 .....  
 .....  
 .....  
 .....  
 .....

7. **2002 Q33 P1**

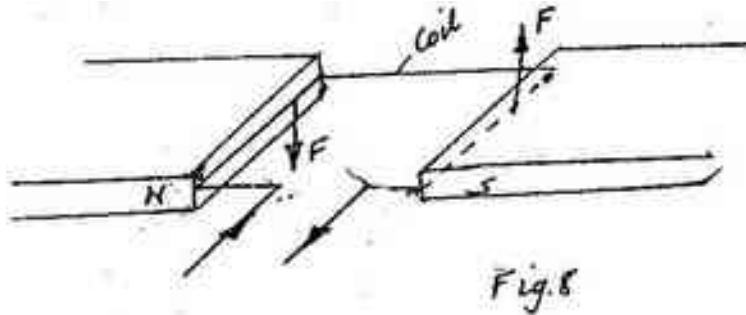
Fig.1 shows a wire XY placed in a magnetic field.



State the direction in which the wire must be moved for the current to move in the direction shown.

8. 2004 Q12 P1

Figure 8 shows a current-carrying coil in a magnetic field.



Use the information on the figure to answer question 8 and 9.

Mark on figure 8 the direction of the forces acting on the sides of the coil labelled

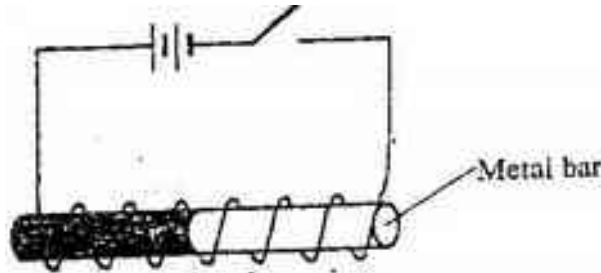
9. 2004 Q13 P1

State two ways of increasing the force on the coil.

.....  
.....

10. 2005 Q37 P1

In the set up Fig 1 the metal rod is made up of steel and iron pieces joined end.  
Your are provided with two iron nails.



Explain how you would use two nails provided to determine which side is iron  
(2 marks)

.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....

11. 2008 Q6 P2

Figure 3 shows a flat spring made of iron clamped horizontally on the bench over a solenoid.

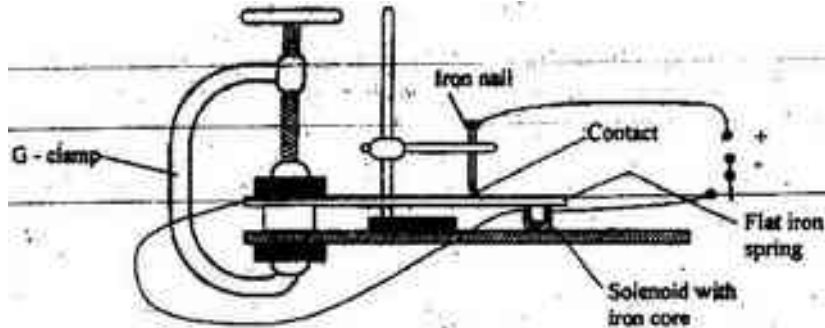


Figure 3

When the switch is closed, the spring vibrates. Explain this observation. (3 marks)

.....

.....

.....

.....

.....

.....

.....

12. 2009 Q5 P2

An electromagnet is made by winding insulated copper wire on an iron core. State two changes that could be made to increase the strength of the electromagnet (2 marks)

.....

.....

.....

.....

13. 2010 Q3 P2

Figure 3, shows a diagram of a current-carrying wire wound on a U-shaped soft iron

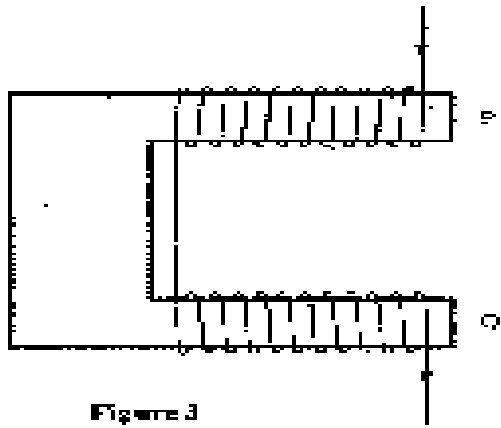


Figure 3

Draw the magnetic field pattern around P and Q.

14. 2010 Q11 P2

Figure 1, shows a horizontal conductor in a magnetic field parallel to the plane of the paper.

conductor

State the direction in which the wire may be moved so that the induced current is in the direction shown by the arrow.

.....

15. 2012 Q7 P2

Figure 7, shows two similar coils P and Q around the end L and M of a piece of soft iron.

A steady current passes through the coils. State the polarity of the resulting magnet at end L (1 mark)

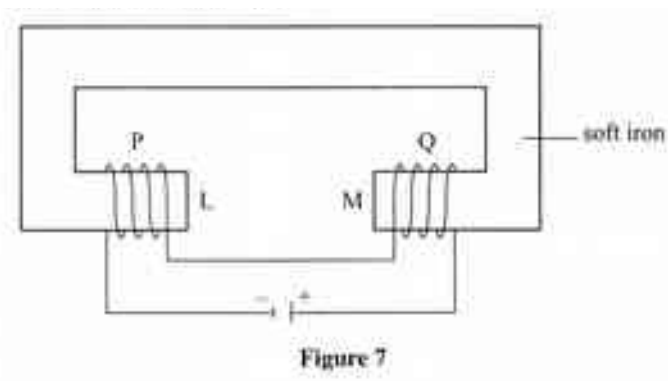


Figure 7

.....

16. 2012 Q11 P2

Figure 10, shows the cross section of a conductor held between two magnets and carrying a current out of the paper

Indicate with an arrow on the diagram the direction in which the conductor will move when it is released. (1 mark)



Figure 10