CBSE Class 10 Science MCQ Chapter 13 Magnetic Effects of Electric Current

Q1) The most suitable material for making the core of an electromagnet is :

a) Steel
b) Iron
c) Soft iron
d) Aluminium

Correct Answer: Option (c)

Q2) Which of the following is not attracted by a magnet?

(a) steel
(b) cobalt
(c) brass
(d) nickel

Correct Answer: Option (c)

Q3) When a straight conductor is carrying current :

a) There are circular magnetic field lines around it
b) There are magnetic field lines parallel to the conductor
c) There are no magnetic field lines
d) None of the above

Correct Answer: Option (a)

Q4) A plotting compass is placed near the south pole of a bar magnet. The pointer of plotting compass will:

(a) point away from the south pole
(b) point parallel to the south pole
(c) point towards the south pole
(d) point at right angles to the south pole

Correct Answer: Option (c)

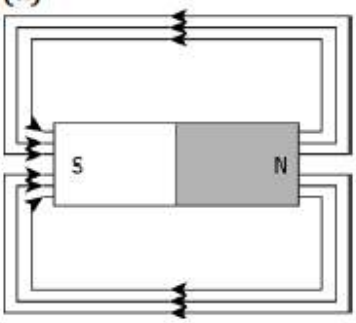
Q5) Two magnetic field lines :

a) Intersect at neutral point
b) Never intersect each other
c) Intersect near north-pole or south pole
d) Intersect at the mid point of the magnet

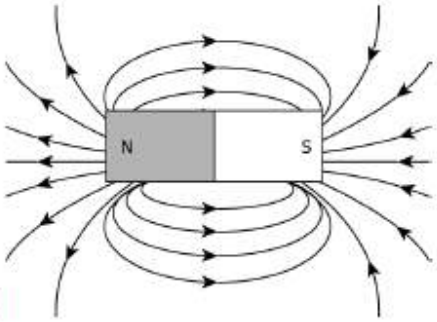
Correct Answer: Option (b)

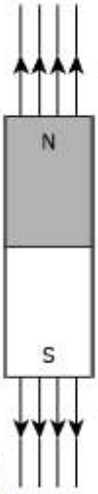
Q6) A student learns that magnetic field strength around a bar magnet is different at every point. Which diagram shows the correct magnetic field lines around a bar magnet?

(a)

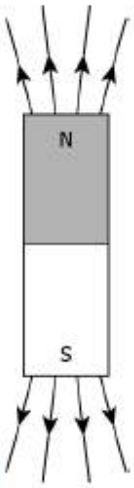


(c)





(b)



(d)

Correct Answer: Option (c)

Q7) The front face of a circular loop of a wire is North-pole, the direction of current in this face of the loop will be :
a) Clockwise
b) Anticlockwise
c) Towards North
d) Towards South

Correct Answer: Option (b)

Q8) Which of the following statements is incorrect regarding magnetic field lines?
(a) The direction of the magnetic field at a point is taken to be the direction in which the north pole of a magnetic compass needle points.
(b) Magnetic field lines are closed curves.
(c) If magnetic field lines are parallel and equidistant, they represent zero field strength.
(d) Relative strength of magnetic field is shown by the degree of closeness of the field lines.

Correct Answer: Option (c)

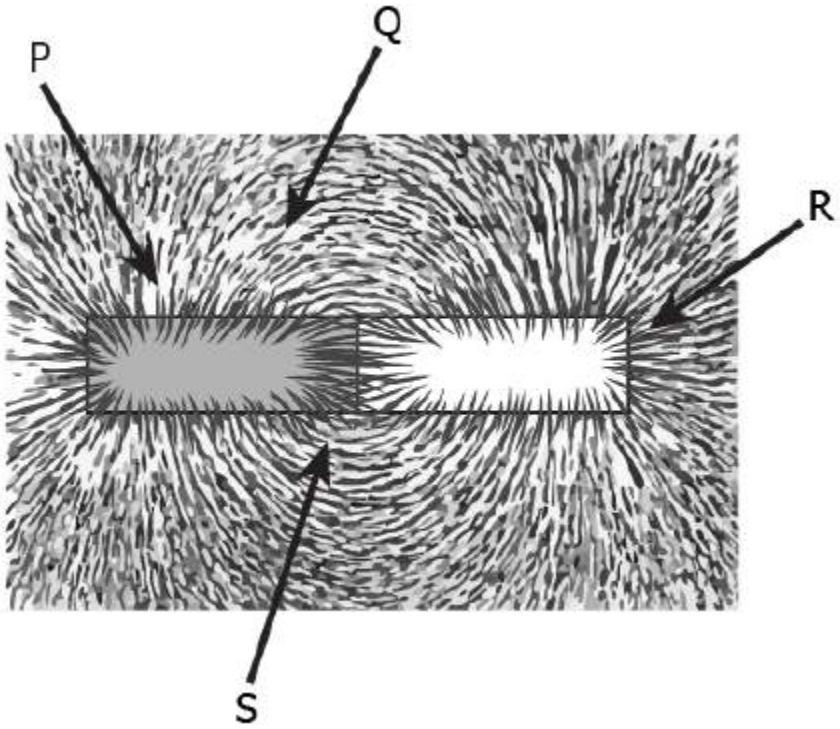
Q9) The magnetic field inside a long straight solenoid carrying current :
a) Is zero
b) Decrease as we move towards its end
c) Is same at all points
d) Increase as we move towards its end

Correct Answer: Option (c)

Q10) A strong bar magnet is placed vertically above a horizontal wooden board. The magnetic lines of force will be:
(a) only in horizontal plane around the magnet
(b) only in vertical plane around the magnet
(c) in horizontal as well as in vertical planes around the magnet
(d) in all the planes around the magnet

Correct Answer: Option (d)

Q11) A student places some iron filings around a magnet. The iron fillings arrange themselves as shown in the image.



The student labelled four different regions around the magnet. Where would be the magnetic be the strongest?
(a) P

(b) Q
(c) R
(d) S

Correct Answer: Option (c)

Q12) The strength of magnetic field inside a long current-carrying straight solenoid is :
a) More at the ends then at the center
b) Minimum in the middle
c) Same at all points
d) Found to increase from one end to the another

Correct Answer: Option (c)

Q13) Which option explains Fleming's left-hand rule to understand the working of a motor?
(a) When a current carrying conductor is moved with a force, it creates the magnetic field.
(b) When a conductor is moved inside a magnetic field, current is produced in the conductor.
(c) When the magnetic field is moved relative to the conductor, current is produced in the conductor.
(d) When a current carrying conductor is placed in a magnetic field, it experiences a force by magnetic field.

Correct Answer: Option (d)

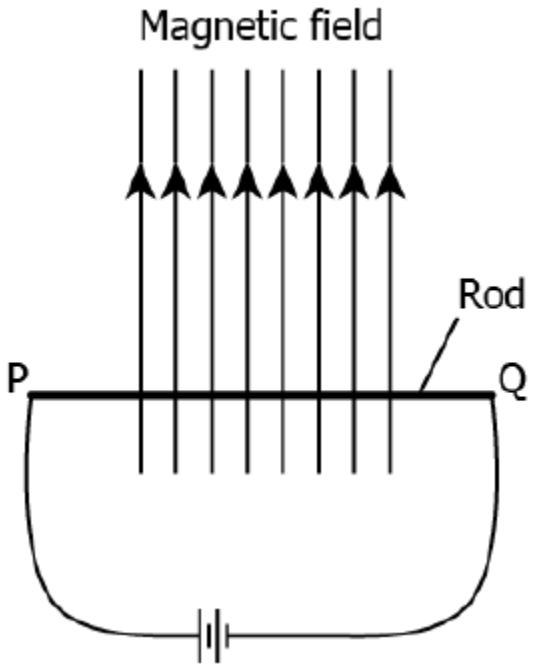
Q14) The force on a current-carrying conductor when placed perpendicular in a uniform magnetic field.
a) F=BIL
b) F=B/IL
c) F=L/BI
d) F=I/BL

Correct Answer: Option (a)

Q15) A student inserts a bar magnet in the coil. The student observes deflection in the galvanometer connected to the coil. What will happen if the magnet is continuously getting in and out of the coil?
(a) the current induced in the coil will increase
(b) the current will change its direction continuously
(c) the magnetic field will create a motion in the coil
(d) the magnetic field of the bar magnet would keep decreasing

Correct Answer: Option (b)

Q16) A metal rod PQ is placed in the magnetic field. The ends of the rod are connected with a battery using wires.



Where will the rod move?
(a) upward
(b) downwards
(c) into the field
(d) out of the field

Correct Answer: Option (d)

Q17) A soft iron bar is introduced inside a current carrying solenoid. The magnetic field inside a solenoid :
a) decrease
b) Will increase
c) Will become Will zero
d) Will remain unaffected

Correct Answer: Option (b)

Q18) **Assertion (A):** As the speed of the coil in the motor increases, there is reduction in the current flowing through it.
Reason (R): During rotation in an electric motor, some induced current is produced.

(a) (A) is incorrect and (R) is correct.
(b) (A) is correct and (R) is incorrect.
(c) Both (A) and (R) are correct but (R) is not the correct explanation of (A).

(d) Both (A) and (R) are correct but (R) is the correct explanation of (A).

Correct Answer: Option (d)

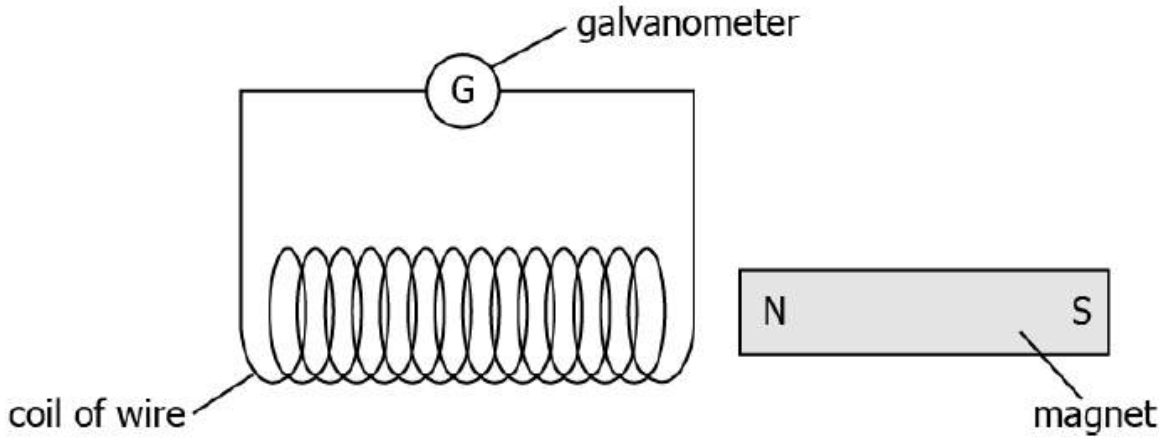
Q19) Which of the following correctly describes the magnetic field near a long straight wire?
a) The field consists of straight lines perpendicular to the wire
b) The field consists of straight lines parallel to the wire
c) The field consists of radial lines originating from the wire
d) The field consists of concentric circles centred on the wire

Correct Answer: Option (d)

Q20) For a current in the long straight solenoid N and S- poles are created at the two ends. Among the following statement, the incorrect statement is:
a) The field lines inside the solenoid are in the form of straight lines which indicates that the magnetic field is the same at the all points inside the solenoids
b) The strong magnetic field produced inside the solenoid can be used to magnetize a piece of magnetic material like soft iron, when place inside the coil
c) The pattern of the magnetic field associated with the solenoid is different from the pattern of the magnetic field around a bar magnet.
d) The N and S-poles exchange position when the direction of the current through the solenoid is reversed

Correct Answer: Option (c)

Q21) A student makes an arrangement to study electromagnetic induction, as shown.



She changes the arrangement in four different ways.
Trial

1. Moves the coil in left away from the magnet.
2. Moves the magnet in right away from the coil.
3. Moves both coil and magnet towards each other.
4. Moves both coil and magnet in the same direction at the same speed.

In which trial the galvanometer would remain undeflected?
(a) trial 1
(b) trial 2
(c) trial 3
(d) trial 4

Correct Answer: Option (d)

Q22) Appliances that have a metal body are generally connected to the earthing wire. What is the reason to earth these wires?
(a) to prevent excess of current
(b) to prevent the leakage of current
(c) to provide extra current to appliance
(d) to provide high resistance to the appliance

Correct Answer: Option (b)