

BAL BHARATI PUBLIC SCHOOL
GANGARAM HOSPITAL MARG, NEW DELHI-60

CLASS:X

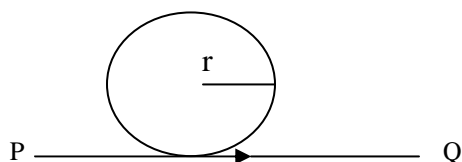
SUBJECT: PHYSICS

ASSIGNMENT NO 2

TOPIC:MAGNETIC EFFECTS OF ELECTRIC CURRENT

1. State the effects of current.
2. Why does a compass needle placed near a current carrying wire show deflection?
3. How can the magnetic field produced around a current carrying conductor be detected?
4. Give one example each of the following:- (a) magnetic effect of electric current (b) electric effect of moving magnets
5. Define magnetic field.
6. Give the characteristics of magnetic field lines.
7. With the help of an activity show how magnetic field lines around a bar magnet can be obtained. Also draw the pattern of magnetic field lines around a bar magnet.
8. How is the deflection in the compass needle affected as we move it along a field line (a) towards the poles (b) away from poles.
9. State the factors on which strength of magnetic field due to a straight current carrying conductor depends.
10. "the concentric circles representing the magnetic field around a current carrying straight wire become larger and larger as we move away from it." What conclusion can be drawn from this statement?
11. Name and state the rule to determine the direction of magnetic field produced around a current carrying conductor.
12. Two magnetic lines of force do not intersect each other. Why?
13. Draw the pattern of lines of force due to a magnetic field through and around a current carrying loop of wire. How does the strength of magnetic field produced at the centre of the loop be affected if:-
 - (a) strength of the current passing through it is doubled?
 - (b) the radius of the loop is reduced to half the original value?
 - (c) the radius of the loop is doubled its original value and at the same time current passing through it is also doubled?
14. What does the arrow of the magnetic field line indicate?
15. What does crowding of field lines at a point mean?
16. Will a circular loop of bigger radius produce higher magnetic field than a loop of smaller radius if current flowing through both the loops is same? Give reason.
17. What is a solenoid?
18. Draw comparison of magnetic field pattern due to current carrying solenoid and that of a bar magnet.
19. The field lines inside the solenoid are in the form of parallel straight lines. What does this indicate?
20. What is an electromagnet?
21. How can we magnetise a piece of magnetic material?
22. Show with the help of an activity that a force is exerted on the current carrying conductor when it is placed in a magnetic field.
23. State the rule which is used to find the direction of force exerted on a current carrying conductor when placed in a magnetic field.
24. A charged particle experiences minimum force when it travels-
 - (a) parallel to the magnetic field
 - (b) normal to the magnetic field
 - (c) at 45° to the field
 - (d) at 75° to the field.
25. The magnetic field due to a long straight conductor carrying current is independent of
 - (a) the current
 - (b) distance of the conductor from the point
 - (c) length of the conductor
 - (d) none
26. Give a few applications / uses of electromagnets in daily life.
27. What is electromagnetic induction?
28. State the rule which is used to find the direction of induced current.
29. How can current be induced in a coil? (State different ways of inducing current in a coil)
30. A bar magnet is moved towards a solenoid whose ends are connected to a galvanometer? State your observations and give reason for the same.
31. Give the energy transformation taking place in a
 - (a) generator
 - (b) electric motor

32. In India, what is the p.d. between neutral and live wire?
33. What is the current rating for (i) circuit consisting of bulbs, fans in the household (ii) circuit used for air conditioners, geysers?
34. State the colour of insulation used for – live wire, earth wire, neutral wire; used in the household circuit?
35. Give the function of 'earth wire'?
36. What is (i) overloading (ii) short circuiting?
37. How is the household circuit protected from damage due to sudden hike in supply voltage?
38. Direction of current (a.c.) changes after every $1/100$ second. What is its frequency?
39. Give the difference between a.c. and d.c.
40. Give one advantage of a.c. over d.c.
41. Differentiate between an electromagnet and an ordinary bar magnet.
42. Name one material in each case which is used to make a (i) permanent magnet (ii) temporary magnet
43. Describe an activity to show that you can make an electromagnet in your school laboratory.
- 44.



What is the magnitude of induced current in circular loop of radius 'r' if straight wire PQ carries a steady current of 'I' ampere?

45. An alternating current has a frequency of 50 Hz. How many times does it change its direction in one second?
46. How can 'overloading' in a circuit be avoided?
47. Is magnetic field a scalar or a vector quantity?
48. Which of the following measures will decrease the strength of the magnetic field of a current carrying solenoid –
 - (i) increasing the temperature of the solenoid
 - (ii) increasing the current
 - (iii) increasing the number of turns of wire
 - (iv) all the above measures
49. What is an MCB? Why is it better than an electric fuse?
50. At the time of short circuit, the current in the circuit (i) reduces substantially (ii) does not change (iii) increases heavily (iv) varies continuously
51. When a fuse is rated at 8A, it means –
 - (i) it will not work if current is less than 8A
 - (ii) it has a resistance of 8 ohm
 - (iii) it will work only if current is 8A
 - (iv) it will burn if current exceeds 8A