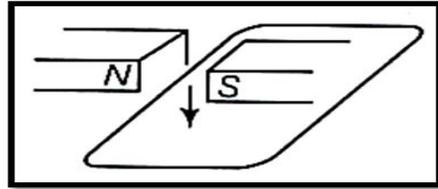


Revision Question Bank

1. The flow of current in a circular wire creates a magnetic field at its centre. How can existence of this field be detected? State the rule which helps to predict the direction of this magnetic field.
2. (a) Mention any two properties of the magnetic field lines,
(b) Draw the pattern of field lines due to a bar magnet
3. The wire in figure below is being moved downwards through the magnetic field so as to produce induced current.

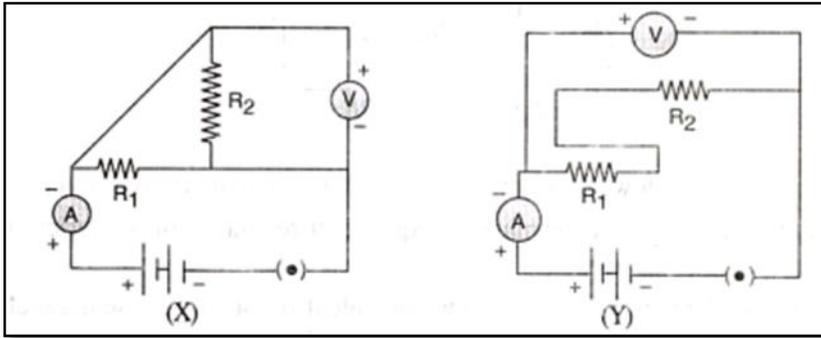


- What would be the effect of
- (a) Moving the wire at a higher speed?
 - (b) Moving the wire upwards rather than downwards?
 - (c) Using a stronger magnet?
 - (d) Holding the wire still in the magnetic field?
4. Why is pure iron not used for making permanent magnets? Describe how permanent magnets are made electrically. State two examples of electrical instruments made by using permanent magnets.
 5. Draw the lines of force of magnetic field as through
 - (a) a single loop, of wire carrying current.
 - (b) Solenoid carrying a direct current.
 6. Why does a compass needle get deflected when brought near a bar magnet?
 7. Explain why two magnetic lines of force do not intersect.
 8. State the principle of an electric generator.
 9. Monopoles never exists. Why?
 10. Differentiate between permanent magnetic and electro magnet.

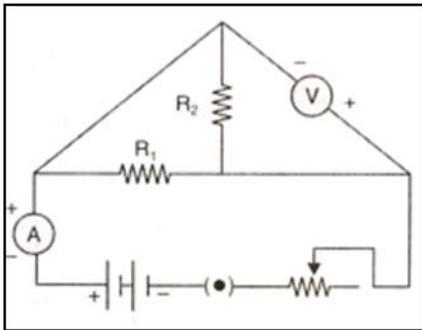
For Solutions: www.pioneermathematics.com/latestupdates

MCQs [Practical Based Questions]

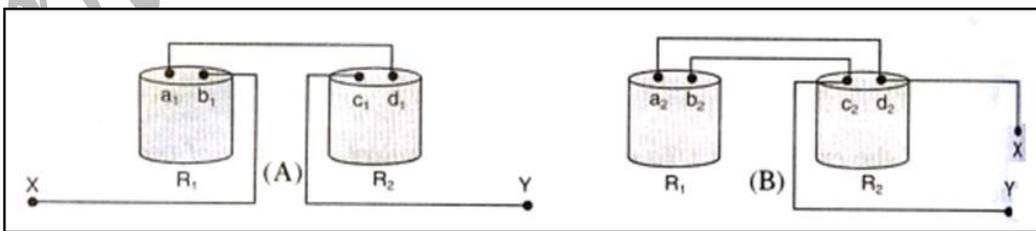
1. The only correct statement for the two circuits (X) and (Y) shown below is:



- (a) the resistors R_1 and R_2 have been connected in series in both the circuits
 - (b) the resistors R_1 and R_2 have been connected in parallel in both the circuits
 - (c) in the circuit (X) the resistors have been connected in parallel whereas these are connected in series in circuit (Y)
 - (d) in the circuit (X) the resistors R_1 and R_2 are connected in series while these are connected in parallel in circuit (Y).
2. The only correct statement for the following electric circuit is:



- (a) the voltmeter has been correctly connected in the circuit
 - (b) the ammeter has been correctly connected in the circuit
 - (c) the resistors R_1 and R_2 have been correctly connected in series
 - (d) the resistors R_1 and R_2 have been correctly connected in parallel.
3. Two students (A) and (B) connect their two given resistors R_1 and R_2 in the manners shown below :



Student (A) connects the terminals marked (B₁) and (C₁) while student (B) connects the terminals marked (D₂) and (c₃) in their respective circuits at the points marked X and Y.

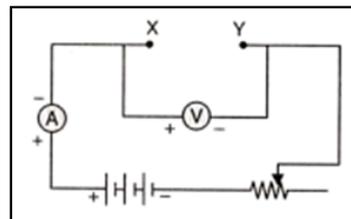
Which one of the following is correct in relation to above arrangements?

(a) both the students will determine the equivalent resistance of the series combination of the two resistors

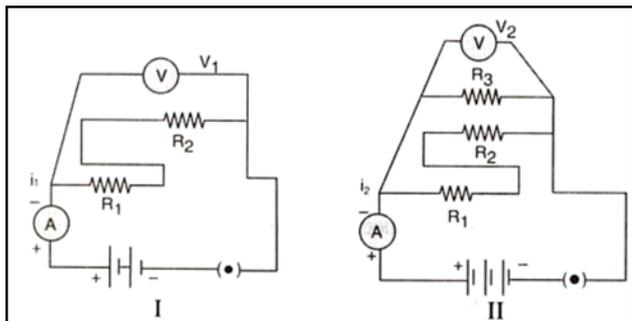
(b) both the students will determine the equivalent resistance of the parallel combination of the two resistors

(c) student (A) will determine the equivalent resistance of the series combination while student (B) will determine the equivalent resistance of the parallel combination of the two resistors

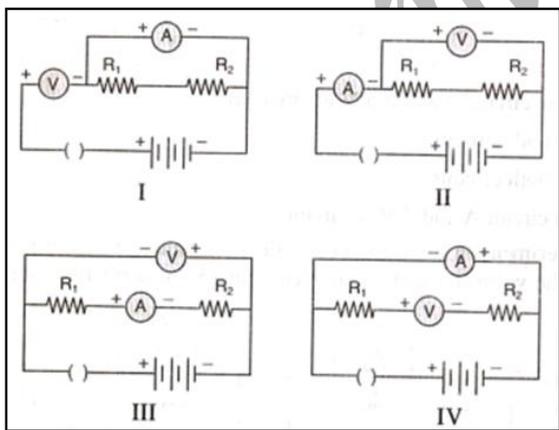
(d) student (A) will determine the equivalent resistance of the parallel combination while student (B) will determine the equivalent resistance of the series combination of the two resistors.



4. Circuit I: ammeter reads current i_1 and voltmeter reads V_1
 Circuit II: ammeter reads current i_2 : and voltmeter reads V_2 .



5. The correct way of connecting the ammeter and voltmeter with a series combination of two resistors in a circuit for finding their equivalent resistance, is shown in diagram.



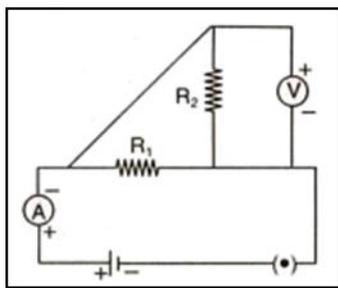
(a) I

(b) II

(c) III

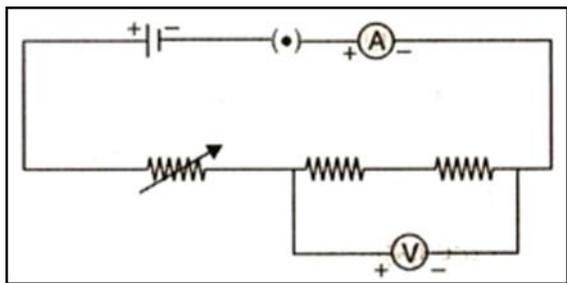
(d) IV

6. Which of the circuit components in the following circuit diagram are connected in parallel?



- (a) R_1 and R_2 only (b) R_2 and V only (c) R_1 and V only (d) R_1 , R_2 and V .

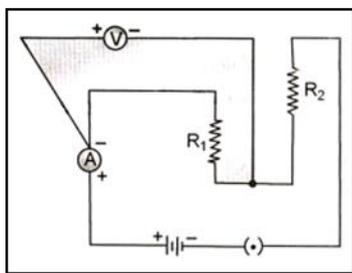
7. To determine the equivalent resistance of two resistors when connected in series, a student arranged the circuit components as shown in the diagram. But he did not succeed to achieve the objective.



Which of the following mistakes has been committed by him in setting up the circuit?

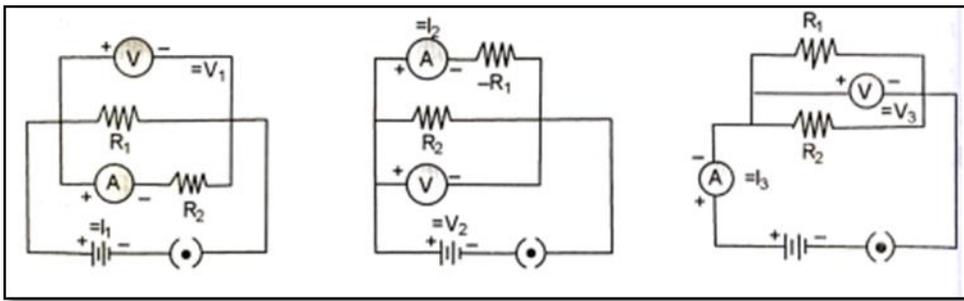
- (a) position of voltmeter is incorrect (b) position of ammeter is incorrect
 (c) terminals of voltmeter are wrongly connected (d) terminals of ammeter are wrongly connected.

8. A student sets-up an electric circuit shown here for finding the equivalent resistance of two resistors in series. In this circuit, the :



- (a) resistors have been connected correctly but the voltmeter has been wrongly connected
 (b) resistors have been connected correctly but the ammeter has been wrongly connected
 (c) resistors, as well as the voltmeter, have been wrongly connected
 (d) resistors, as well as the ammeter, have been wrongly connected

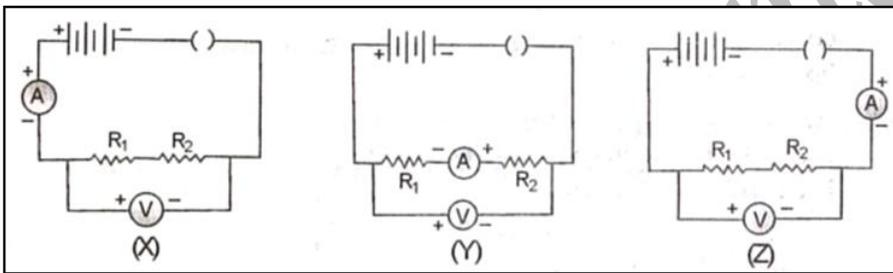
9. For three circuits, shown here:



the same two resistors and have been connected in parallel in all the circuit but the voltmeter and the ammeter have been connected in three different position The relation between the three voltmeter and ammeter readings would be:

- (a) $V_1 = V_2 = V_3$ and $I_1 = I_2 = I_3$ (b) $V_1 \neq V_2 \neq V_3$ and $I_1 = I_2 = I_3$
 (c) $V_1 = V_2 = V_3$ and $I_1 \neq I_2 \neq I_3$ (d) $V_1 \neq V_2 \neq V_3$ and $I_1 \neq I_2 \neq I_3$

10. In their experiment, on finding the value of equivalent resistance of two resistors connected in series, three students connected the ammeter, in their circuits, in the three ways X, Y and Z shown below:



Assuming the ammeters to be ideal, the ammeter has been incorrectly connected in:

- (a) case X only (b) case Y only (c) case Z only (d) all the three cases.

Answers

1.	c	2.	d	3.	c	4.	b	5.	b
6.	d	7.	d	8.	d	9.	c	10.	d

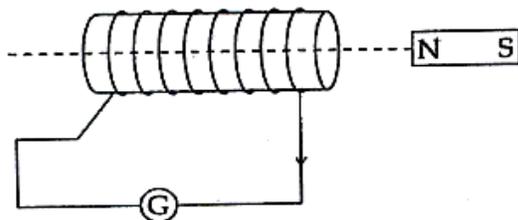
For Solutions: www.pioneermathematics.com/latestupdates

Previous Years Question Bank**Magnetism**

1. Indicate the direction of the magnetic field outside a bar magnet. **[CBSE Schools 2016–17]**
2. How will a fine beam of electrons streaming in west to east direction be affected by a magnetic field directed vertically upwards? Explain with the help of a diagram mentioning the rule applied. **[CBSE Schools 2016–17]**
3. (a) How is the strength of the magnetic field at a point near a straight conductor related to the strength of the electric current flowing in the conductor? **[CBSE Schools 2016–17]**
(b) With the help of a diagram describe an activity to show that a straight conductor carrying current produces a magnetic field around it. State the rule which may be used to determine the direction of magnetic field thus produced.
(c) Why do two magnetic field lines never intersect each other? Explain.
4. (i) A magnetic field is directed towards east. If an electron entering this field moves North, what will be the direction of force experienced by it? What will happen to the electron if it is moving parallel to the field?
(ii) State the rule which gives the direction of force acting on a current carrying conductor placed in a magnetic field. List any 2 factors on which this force depends. **[CBSE Schools 2016–17]**
5. There are two coils of insulated copper wire. Explain how you will induce current in one of the coils. How can the strength of induced current be increased? Also name the phenomenon involved and give one practical application of it. **[CBSE Schools 2016–17]**
6. For same current flowing through a solenoid and a straight conductor, the magnetic field produced by a solenoid is much stronger than the magnetic field produced by a straight current carrying conductor. State one reason to justify this statement. **[CBSE Schools 2016–17]**
7. (i) Describe an activity to show how the moving magnet may be used to generate an electric current. State the rule to find the direction of electric current generated in the coil in this manner.
(ii) A coil 'A' of insulated copper wire is connected to a galvanometer what would you observe when:
(a) current carrying coil B is brought near A.
(b) strength of the current in coil 'B' is changed. **[CBSE Schools 2016–17]**
8. The flow of current in a circular loop of wire creates a magnetic field at its centre. How can the existence of this field be detected? State the rule which helps to determine the direction of this magnetic field.
Name four common devices in which current carrying conductors and magnetic fields are used.

9. For same current flowing through a solenoid and a straight conductor, the magnetic field produced by a solenoid is much stronger than the magnetic field produced by a straight current carrying conductor.
State one reason to justify this statement. **[CBSE Schools 2016-17]**

10. What change in the galvanometer needle would you observe when a strong bar magnet is :
(i) kept stationary at a distance from the coil? (ii) pushed towards the coil ?
(iii) pulled away from the coil ? Give reason to justify your answer. **[CBSE Schools 2016-17]**



11. A student fixes a sheet of white paper on a drawing board. He places a bar magnet in the centre of it. He sprinkles some iron filings uniformly around the bar magnet. Then he taps the board gently.
Now answer the following questions: **[CBSE Schools 2016-17]**

- (i) What does the student observe ? Draw a diagram to illustrate your answer,
(ii) Why do the iron filings arrange in such a pattern?
(iii) What does the crowding of the iron filings at the ends of the magnet indicate?

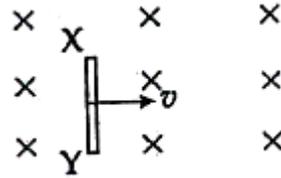
12. Design an activity to demonstrate that a bar magnet has a magnetic field around it. **[CBSE Schools 2016-17]**

13. (a) A coil of insulated copper wire is connected to a galvanometer. With the help of a labelled diagram state what would be seen if a bar magnet with its south pole towards one face of this coil is:
(i) moved quickly towards it, (ii) moved quickly away from it,
(iii) placed near its one face ?
(b) Name the phenomena involved in the above cases,
(c) State Flemings right hand rule. **[CBSE Schools 2016-17]**

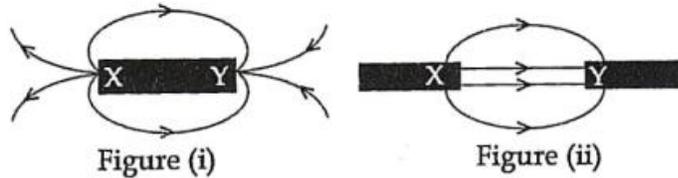
14. A current carrying conductor is placed in a magnetic field now answer the following :
(i) List the factors on which the magnitude of force experience by conductor depends.
(ii) When is the magnitude of this force maximum? **[CBSE Schools 2016-17]**
(iii) State the rule which helps in finding the direction of motion of conductor.
(iv) If initially this force was acting from right is left how will the direction of force change if:
(a) direction of magnetic field is reversed ? (b) direction of current is reversed ?

15. (a) Write any three point of differences between AC and DC. **[CBSE Schools 2016-17]**
(b) Draw a diagram showing magnetic field lines across a current carrying solenoid.

16. Crosses \otimes represent a uniform magnetic field directed into the paper. A conductor XY moves in the field toward right side. Find the direction of induced current in the conductor. Name the rule you applied. What will be the direction of current if the direction of field and the direction of motion of the conductor both are reversed? [CBSE Schools 2016-17]

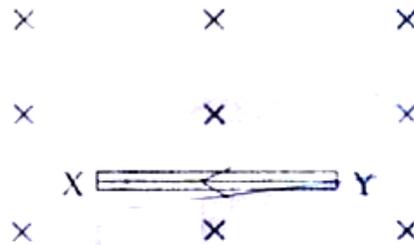


17. (a) Identify the nature of poles (X and Y) of the magnets in a given figure. [CBSE Schools 2016-17]



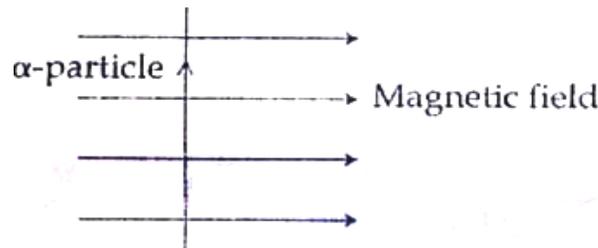
(b) Draw field lines around a current carrying loop. What happens to the magnetic field lines due to a current carrying straight conductor when the current is reversed? State the rule which gives relation between field lines and direction of current.

18. Crosses \otimes represent a uniform magnetic field directed into the paper. A conductor XY placed in the field carries current in Y to X direction. Find the direction of the force experienced by the conductor. Name the rule you applied. What will happen to the direction of force if the direction of field and direction of current both are reversed? [CBSE Schools 2016-17]



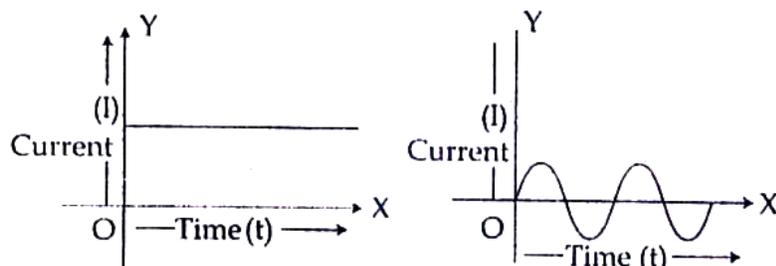
19. (a) Describe an activity to determine the direction of magnetic field produced by a current carrying straight conductor. Also show that the direction of the magnetic field is reversed on reversing the direction of current. [CBSE Schools 2016-17]

(b) An α -particle, (Which is a positively charged particle) enters, a uniform magnetic field at right angles to it as shown below. Stating the relevant principle explain in which direction will this α -particle move?

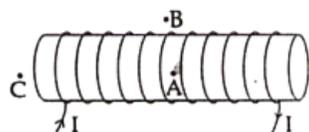


20. (a) What are magnetic field lines? How is direction of magnetic field at a point determined?
 (b) Draw field lines around a bar magnet along its length and mark the field direction on them by arrow marks,
 (c) List two properties of magnetic field lines. [CBSE Schools 2016-17]

21. How are magnetic field lines of a bar magnet drawn. "Two field lines are never found to intersect each other". Give reason to justify this statement. **[CBSE Schools 2016-17]**
22. What are magnetic field lines? List three characteristics of these lines. Describe in brief an activity to study the magnetic field lines due to a current carrying circular coil. **[CBSE Schools 2016-17]**
23. Name the rule which gives the direction of induced current in a conductor. **[CBSE Schools 2016-17]**
24. Find the direction of magnetic field due to a current carrying circular coil held:**[CBSE Schools 2016-17]**
 (i) vertically in North - South plane and an observer looking it from east sees the current to flow in anticlockwise direction.
 (ii) 'vertically in East - West plane and an observer looking it from south sees the current to flow in anticlockwise direction.
 (iii) horizontally and an observer looking at it from below sees current to flow in clockwise direction.
25. Name the rule that is used to find the direction of the force on a current carrying conductor when placed in a magnetic field. **[CBSE Schools 2016-17]**
26. State Maxwell's right hand grip rule giving diagram. A straight conductor placed horizontally is carrying current from west to east. What will be the direction of magnetic field lines around it? **[CBSE Schools 2016-17]**
27. In our daily life we use two types of electric current whose current time graphs are given below.

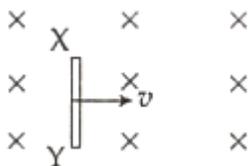


- (a) Identify the types of current in each case. **[CBSE Schools 2016-17]**
- (b) Identify any one source of each type of current
- (c) What is frequency of current used in domestic supply in India ?
- (d) On the basis of graphs write difference between the two currents.
- (e) Out of two which one is used in transmitting electric power over long distances and why?
28. For the current carrying solenoid as shown below, draw magnetic field lines and giving reason explain that out of the three points A, B and C at which point the field strength is maximum and at which point it is minimum. **[CBSE Schools 2015-16]**



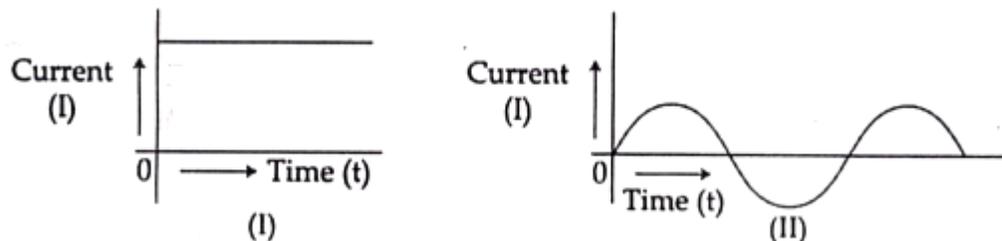
29. What are magnetic field lines? Justify the following statements: **[CBSE Schools 2015-16]**
 (a) Two magnetic field lines never intersect each other. (b) Magnetic field lines are closed curves.

30. (a) Describe an activity with labelled diagram to show that a current carrying conductor experience a force in a magnetic field.
(b) State the rule used to determine the direction of this force. **[CBSE Schools 2015-16]**
31. A magnetic compass needle is placed in the plane of the paper. In which plane would you place a straight current carrying conductor near this needle so that there is no change in the deflection of the compass? State the condition of the current carrying conductor in which the compass needle will show the maximum deflection. Justify your answer. **[CBSE Schools 2015-16]**
32. Crosses \otimes represent a uniform magnetic field directed into the paper. A conductor XY moves in the field toward right side. Find the direction of induced current in the conductor. Name the rule you applied. What will be the direction of current if the direction of field and the direction of motion of the conductor both are reversed? **[CBSE Schools 2015-16]**

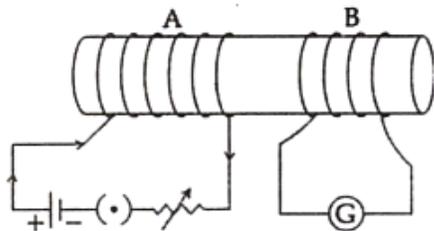


33. (a) Draw magnetic field lines of a bar magnet. "Two magnetic field lines never intersect each other". Why?
(b) An electric oven of 1.5 kW is operated in a domestic circuit (220 V) that has a current rating of 5 A. What result do you expect in this case? Explain. **[CBSE Schools 2015-16]**
34. Why are magnetic field lines more crowded towards the pole of a magnet? **[CBSE Schools 2015-16]**
35. (a) Draw the pattern of magnetic field lines through and around the current carrying solenoid. What does the magnetic field pattern inside the solenoid indicate? **[CBSE Schools 2015-16]**
(b) How can this property of solenoid be utilized to make an electromagnet?
(c) State two ways in which strength of this electromagnet can be increased.
36. State the purpose for which the following rules are used : **[CBSE Schools 2015-16]**
(i) Right hand thumb rule (ii) Fleming's left hand rule (iii) Fleming's right hand rule
37. Can you run an electric geyser with power rating 2 kW; 220V on a 5 A line? Give reason to justify your answer.
38. (a) What is meant by magnetic field lines? How is the direction of a magnetic field at a point determined?
(b) Draw field lines around a bar magnet near its two ends and mark the field directions.
(c) List any two properties of magnetic field lines. **[CBSE Schools 2015-16]**
39. What is meant by magnetic force? Name and explain the rule to determine the direction of force experienced by a current carrying conductor in a magnetic field. How does this force gets affected on:
(i) doubling the magnitude of current. (ii) reversing the direction of current flow.
(iii) reversing the direction of magnetic field. **[CBSE Schools 2015-16]**
40. Define magnetic field. Draw the magnetic field lines due to a current carrying straight conductor. Name the rule used for determining the direction of field lines. **[CBSE Schools 2015-16]**
41. What is short circuiting? State one factor/condition that can lead to it. Name a device in the household that act as a safety measure for it. State the principle on its working. **[CBSE Schools 2015-16]**
42. What is meant by solenoid? How does a current carrying solenoid behave? Give its main use. **[CBSE Schools 2015-16]**

43. Study the following current - time graphs from two different sources : [CBSE Schools 2015-16]



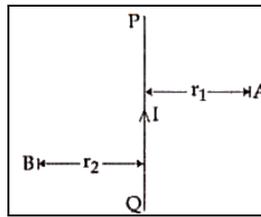
- (i) Use above graphs to list two differences between the current in the two cases.
 (ii) Name the type of current in the two cases. (iii) Identify one source each for these currents.
 (iv) What is meant by the statement that " the frequency of current in India is 50 Hz " ?
44. List three different situations in which the current in the circuit abruptly increases. What is the name of these situations? How can we prevent the electric circuit and appliances from possible damage under these situations? [CBSE Schools 2015-16]
45. (i) Describe an activity to show how the moving magnet may be used to generate an electric current. State the rule to find the direction of electric current generated in the coil in this manner.
 (ii) A coil 'A' of insulated copper wire is connected to a galvanometer what would you observe when
 (a) a current carrying coil B is brought near A.
 (b) strength of the current in coil 'B' is changed. [CBSE Schools 2015-16]
46. In the arrangement shown below two different copper coils A and B have been inserted over a non-conducting hollow cylinder. [CBSE Schools 2015-16]
- (i) Will the galvanometer (G) show any deflection when a constant current flows in coil A?
 (ii) Will the galvanometer show any deflection when current in coil A is changed with the help of rheostat?
 (iii) Will there be any change in deflection if the current in the coil A is changed at a faster rate? Explain your observation in each case.



47. (a) Draw the pattern of magnetic field lines of a current carrying solenoid. What does the pattern of field lines inside the solenoid indicate? Write one application of this magnetic field.
 (b) What is overloading? List three precautions that should be taken to avoid overloading of domestic electric circuits. [CBSE Schools 2015-16]
48. (a) What is the shape of magnetic field lines produced around a straight current carrying conductor?
 (b) Name and explain the rule which gives the direction of magnetic field around a straight current carrying conductor. [CBSE Schools 2014-15]

49. (a) What are magnetic lines of force? **[CBSE Schools 2014–15]**
(b) How is the direction of magnetic field at a point determined?
(c) Write any two properties of a bar magnet.
(d) How do the magnetic field lines outside a magnet differ from the magnetic field lines inside it?
50. (a) Write the factors affecting the strength of the force acting on a current carrying conductor; freely suspended in a magnetic field.
(b) Under which condition the force experienced by a current carrying conductor in a magnetic field is maximum.
(c) State Fleming's left hand rule. **[CBSE Schools 2014–15]**
51. (a) What is a solenoid? **[CBSE Schools 2014–15]**
(b) What does the pattern of its magnetic lines signify?
(c) How Is an electromagnet formed?
(d) Draw a diagram to show the field lines of a solenoid.
52. What is an electromagnet? Give its two applications. Give two factors which affects its strength. **[CBSE Schools 2014–15]**
53. With the help of diagram describe the electromagnetic induction by using two coils and explain the observations. **[CBSE Schools 2014–15]**
54. An electric kettle of 2kW works for 2 hours daily. Calculate the:
i. energy consumed in SI units and commercial unit.
ii. Cost of running it in the month of June at the rate of Rs. 3.00 per unit. **[CBSE Schools 2014–15]**
55. You are given three identical looking bars one of which is a magnet, the other made of a magnetic material and the third made of a non- magnetic material. Using just these three bars how will you find out which is which? **[CBSE Schools 2014–15]**
56. Explain whether an alpha particle will experience any force in a magnetic field if :
(i) it is placed in the field at rest (ii) it moves in the magnetic field parallel to field lines
(iii) it moves in the magnetic field perpendicular to field lines. **[CBSE Schools 2014–15]**
57. Whenever there is a relative motion between a magnet and a coil, a current is induced in the coil. Name this phenomenon? **[CBSE Schools 2014–15]**
58. (a) What is the usual colour code followed for connecting live, neutral and earth wires? Why is it important?
(b) What is the function of an earth wire in domestic circuits?
(c) State the role of fuse in domestic circuits and explain why fuse should be joined with the live wire and not with the neutral wire in domestic circuits. **[CBSE Schools 2014–15]**

59. Write the frequency of alternating current (AC) in India. How many times per second it changes its direction? **[CBSE Schools 2014–15]**
60. (a) State Right Hand Thumb rule to find the direction of the magnetic field around current carrying straight conductor. **[CBSE Schools 2014–15]**
- (b) How will the magnetic field be affected on:
- (i) increasing the current through the conductor.
- (ii) reversing the direction of flow of current in the conductor.
61. What is the difference between overloading and short circuiting? **[CBSE Schools 2013–14]**
62. Two circular coils A and B are placed close to each other. If the current in the coil A is changed will some current be induced in B? Give reason. **[CBSE Schools 2013–14]**
63. Given $r_2 < r_1$, where will be the strength of the magnetic field larger? Justify your answer in each case. **[CBSE Schools 2013–14]**



64. (a) How will the magnetic field around a current - carrying straight conductor be affected on:
- (i) increasing the current through the conductor **[CBSE Schools 2013–14]**
- (ii) changing the direction of flow of current in the conductor
- (b) Describe an activity with diagram to draw magnetic field lines due to a current carrying circular loop.

Sources of Energy

Previous Years Questions

1. Identify the part of a solar cooker that produces green-house effect? **[CBSE Schools 2016-17]**
2. Himanshu participated in a debate competition on the use of energy resources in his school. He said, we should use electric appliances judiciously, lights and fans should be switched off when not required. He said, a lot of coal is burnt to produce electricity. Dams are constructed over rivers to produce electricity. Local people generally oppose construction of large dams like Tehri and Narmada dam.
Answer the following questions based on Himanshu's debate :
 - (i) Why is Himanshu worried about burning of coal to produce electricity?
 - (ii) Why do local people oppose construction of dams over rivers?
 - (iii) Which values will be inculcated in students by Himanshu? **[CBSE Schools 2016-17]**
3. (a) Define tidal energy. **[CBSE Schools 2016-17]**
(b) Explain how is tidal energy harnessed .and write one limitation of the use of tidal energy.
4. Why is hydrogen considered a better fuel than CNG? **[CBSE Schools 2016-17]**
5. Explain how energy can be generated from the nucleus of a uranium atom. Discuss one merit and one demerit of this energy. **[CBSE Schools 2016-17]**
6. India is one of the leading users of solar cell panels for both domestic as well as commercial purposes. What does this tell you about the values possessed by us? Also state two merits and 2 de-merits of solar cells. **[CBSE Schools 2016-17]**
7. Write the special technique used for mounting solar cell panels and mention its advantage. **[CBSE Schools 2016-17]**
8. Now a days you might have seen at the roofs of buildings, hospitals, hostels and hotels etc., solar cell panel and solar water heater for obtaining electricity and hot water respectively. Many people are also preferring these methods as a source of energy in their homes also. Answer the following questions:
 - (i) What kind of source of energy is used here?
 - (ii) Why are people preferring these types of sources of energy?
 - (iii) How will it affect our environment? **[CBSE Schools 2016-17]**
9. Explain how is geothermal energy harnessed to produce electricity? **[CBSE Schools 2016-17]**
10. List two steps of energy transformation that take place in a thermal power plant. **[CBSE Schools 2016-17]**
11. You have been assigned a duty to create awareness in your school about saving electricity,
 - (i) Write any two ways by which you will create awareness among your school mates about saving electricity, **[CBSE Schools 2016-17]**

- (ii) Explain how saving electricity is important at an individual level and at national level?
12. State the principle of working of ocean thermal energy conversion plant. Explain how the plant works?
Write one essential condition for it to operate properly. **[CBSE Schools 2016-17]**
13. Ranbir lives in a village and uses wood as a fuel. He studied in his school that charcoal is a better fuel than wood. He decided to use charcoal instead of wood. **[CBSE Schools 2016-17]**
- (i) How can Ranbir obtain charcoal from wood?
- (ii) Why is charcoal considered as better fuel than wood? Give two reasons.
- (iii) State the values that prompted this action of Ranbir.
14. Write two points of difference between renewable and non-renewable sources of energy. Give one example of each. **[CBSE Schools 2016-17]**
15. (a) Write two qualities of an ideal source of energy. **[CBSE Schools 2016-17]**
(b) Give any one reason that make large scale use of nuclear energy prohibitive.
16. Describe the construction and working of a fixed dome type biogas plant with the help of a well labeled diagram. **[CBSE Schools 2016-17]**
17. Name any two nuclear fuels used for the process of nuclear fission. **[CBSE Schools 2016-17]**
18. Shyam's father is a builder. While working on a project of developing a residential complex he ensured that the surrounding was made green by planting trees. Also he installed solar water heaters on the roof tops and solar panel for lighting streets of the complex at night **[CBSE Schools 2016-17]**
- (a) Explain two values exhibited by shy am' s father.
- (b) By opting for solar panel and solar geysers in the residential complex how has Shyam's father made all the future residents of the complex contribute to save energy crises.
19. Explain the working of a simple turbine. **[CBSE Schools 2016-17]**
20. Name the kind of energy possessed by wind and the device used to harness it. **[CBSE Schools 2016-17]**
21. You have been assigned a duty to create awareness in your school about saving electricity.
- (i) Write any two ways by which you will create awareness among your school mates about saving electricity. **[CBSE Schools 2016-17]**
- (ii) Explain how saving electricity is important at an individual level and at national level?
22. State any three reasons to justify that LPG is considered an ideal fuel. **[CBSE Schools 2016-17]**
23. Name the type of micro-organisms that carry out the process of decomposition of biomass in biogas plants.
24. Ramu has a piece of agricultural land in a village. He decides to set up a brick factory on it. His friend Shyam persuades him to change his decision in the interest of village because presence of a factory would severely affect the health of villagers as well as agricultural produce of others. Ramu understands and abandons his plans.

- (a) Mention the values exhibited by shyam.
- (b) Explain how these values helped shyam to save interests of his village. **[CBSE Schools 2016-17]**
25. Write any three disadvantages of using fossil fuels. **[CBSE Schools 2016-17]**
26. Write any two applications of biogas. **[CBSE Schools 2016-17]**
27. Kritika observed that the tube lights in the corridor of her school were always switched on the whole day. She brought the matter to the notice of her class teacher who talked to the Principal about it. The Principal took immediate action. **[CBSE Schools 2016-17]**
- (i) Kritika helped in a way to reduce air pollution. Explain, how?
- (ii) Kritika was appreciated by the teachers and die principal for portraying which values
- (iii) How can the consumption of electricity be reduced in a school ?
28. State any two impacts on the environment caused due to increase in demand for energy. Suggest any two steps to reduce energy consumption. **[CBSE Schools 2016-17]**
29. List any one harm that is caused to environment by hydro power plant. **[CBSE Schools 2016-17]**
30. Jyoti visited her village and saw many villagers using wood for cooking food. She talked to them and tried to convince them to use some other sources of energy. The villagers asked her to help them as they were totally ignorant about it. Jyoti happily agreed. Now answer the following questions:
- (i) Name any two other sources of energy that can be used by the villagers.
- (ii) Why did Jyoti try to convince the villagers not to use wood as fuel?
- (iii) State the values that prompted Jyoti's action. **[CBSE Schools 2016-17]**
31. What should be the minimum wind speed to maintain the required motion of the turbine in a wind energy farm? **[CBSE Schools 2016-17]**
32. Amit lives in Delhi and is much concerned about the increasing electricity bill of his house. He took some steps to save electricity and succeeded in doing so. **[CBSE Schools 2016-17]**
- (i) Mention any two steps that Amit might have taken to save electricity.
- (ii) Amit fulfilled his duty towards the environment by saving electricity. How?
- (iii) Which alternative source of energy would you suggest Amit to use?
33. Mention any three uses of solar cells. **[CBSE Schools 2016-17]**
34. Name two elements used in fission chain reaction in a nuclear reactor.
35. Mr. Kumar visited the newly built bungalow of Kit. friend Mr. Kama! There he observed that a big solar geyser was installed tin the roof. Mr. Kumar told his friend that he was unable to appreciate why he was miser in spending money on installation of electric geysers in each bath-room. Mr. Kamat not only explained him the reason rather convinced Mr. Kumar too to install one in his house.
- (a) Explain the values exhibited by Mr. Kamat.
- (b) List the advantages of solar geyser that convinced Mr. Kumar to adopt it. **[CBSE Schools 2016-17]**

36. (a) What is biomass? **[CBSE Schools 2015-16]**
(b) Write the raw materials used for obtaining biogas.
(c) What causes decomposition of slurry?
37. List the energy transformations that take place in a hydropower plant. **[CBSE Schools 2015-16]**
38. Hemant visited his neighbouring village where a biogas plant has been installed recently. He was very surprised to see the working of the biogas plant. He told his village elders about the advantages of setting up a biogas plant in their village. Now answer the following questions: **[CBSE Schools 2015-16]**
(i) What are the advantages of a biogas plant (any two)
(ii) Why is a biogas plant commonly called as 'gobar gas' plant ?
(iii) Why were the villagers very much impressed with Hemant ?
39. Explain the principle and process of converting ocean thermal energy into electricity. **[CBSE Schools 2015-16]**
40. You have been appointed as the 'eco club incharge' of your school. You have to take care of the maintenance and conservation of the environment. **[CBSE Schools 2015-16]**
(i) Suggest any three ways by which you will carry out your duties.
(ii) Write any three qualities that you would like your school mates to develop for environment conservation.
41. List any three parameters on the basis of which any source of energy can be categorised as a good source of energy? **[CBSE Schools 2015-16]**
42. Himanshu participated in a debate competition on the use of energy resources in his school. He said, we should use electric appliances judiciously, lights and fans should be switched off when not required. He said, a lot of coal is burnt 'to produce electricity. Dams are constructed over rivers to produce electricity. Local people generally oppose construction of large dams like Tehri and Narmada dam. Answer the following questions based on Himanshu's debate :
(i) Why is Himanshu worried about burning of coal to produce electricity ?
(ii) Why do local people oppose construction of dams over rivers ?
(iii) Which values will be inculcated in students by Himanshu ? **[CBSE Schools 2015-16]**
43. Burning of firewood in a traditional chulha is not desirable. Write two reasons in support of this statement. Name the technologically improved form of this fuel and give its two advantages over fire wood. **[CBSE Schools 2015-16]**
44. Name the main constituent of biogas? **[CBSE Schools 2015-16]**
45. Ravi suggests his family to install a solar water heater at their residence. But some of the family members were in a favour of installing an electric geyser. **[CBSE Schools 2015-16]**
(a) Who according to you is taking a correct decision? Mention the value exhibited by Ravi.

- (b) Also, give reasons (at least 2) for your answer.
46. List the characteristics of an ideal fuel. **[CBSE Schools 2015–16]**
47. Name any two nuclear fuels used for the process of nuclear fission. **[CBSE Schools 2015–16]**
48. An NGO is opposing the construction of a dam on a river flowing through a number of villages and forest for the 'purpose' of generating electricity while the Government was insisting that it would bring a number of benefits for the villagers once the project gets completed. **[CBSE Schools 2015–16]**
- (a) Describe the value exhibited by NGO.
- (b) Explain any two concerns of NGO due to which it is opposing construction of dam.
49. Mention three ways to reduce the pollution caused by fossil fuels. **[CBSE Schools 2015–16]**
50. Name two elements used in fission chain reaction in a nuclear reactor. **[CBSE Schools 2015–16]**
51. Arvind visited his ancestral home in a remote village in mountains where the electric supply has not reached yet. He saw the villagers using lantern. He met the village head and explained him about the conversion of solar energy into electric energy. Village head called a meeting of villagers and then gave the important task of bringing electricity to the village to Arvind. Arvind happily agreed. Now answer the following questions: **[CBSE Schools 2015–16]**
- (i) Name the device that converts solar energy into electric energy. Name the main element used for making this device.
- (ii) State two advantages of using this device. (iii) State the values that prompted Arvind's action.
52. Write any three reasons that make large scale use of nuclear energy prohibitive. **[CBSE Schools 2015–16]**
53. Mention the minimum temperature difference required between surface water and the water at-depths of up to 2 km in an ocean thermal energy plant. **[CBSE Schools 2015–16]**
54. Nikhil and Neha went to a remote village in Kerala to meet their grandmother. They were surprised to see a biogas plant in Mr, Nair's house in the neighbourhood. There were plenty of livestock and the household used cooking gas from the plant. Also their farm had rich vegetation. They contacted sarpanch of the village and convinced him to set up a biogas plant for village community.
- (a) Mention the values displayed by Mr. Nair, Nikhil and Neha.
- (b) Explain the possible arguments given by Nikhil and Neha to the Sarpanch to convince him to set up community biogas plant. **[CBSE Schools 2015–16]**
55. List any three ways in which construction of dams for production of electricity adversely affects the environment of that place.
56. Define the term nuclear fission with reaction and example. **[CBSE Schools 2014–15]**
57. Explain the function of disaster bin in a biogas plant. List the two main components of biogas. **[CBSE Schools 2014–15]**

58. Name any one material used to make a solar cell and also mention the range of voltage produced by a typical cell. **[CBSE Schools 2014–15]**
59. When Devraj visited his ancestral village in a remote mountain region, he observed that power transmission line has not reached his village yet. But he saw certain structures (devices) which used sun's energy (solar energy) and converted it to electricity. He decided to use those devices when he came back home in his city. But he found that these devices are very expensive. Now answer the following questions :
- (i) Name the devices used by villagers to convert solar energy into electrical energy.
- (ii) Why are these devices expensive?
- (iii) Suggest some other ways by which Devraj can use solar energy. **[CBSE Schools 2014–15]**
60. Burning of firewood in a traditional chulha is not desirable. Write two reasons in support of this statement. Name the technologically improved form of this fuel and give its two advantages over fire wood. **[CBSE Schools 2014–15]**
61. Explain the process of nuclear fission. **[CBSE Schools 2014–15]**
62. Himanshu participated in a debate competition on the use of energy resources in his school. He said, we should use electric appliances judiciously, lights and fans should be switched off when not required. He said, a lot of coal is burnt to produce electricity. Dams are constructed over rivers to produce electricity. Local people generally oppose construction of large dams like Tehri and Narmada dam. Answer the following questions based on Himanshu debate:
- (i) Why is Himanshu worried about burning of coal to produce electricity?
- (ii) Why do local people oppose construction of dams over rivers?
- (iii) Which values will be inculcated in students by Himanshu? **[CBSE Schools 2014–15]**
63. Name the energy obtained from sea or ocean water due to the difference in temperature at the surface and in deeper sections of these water bodies. **[CBSE Schools 2014–15]**
64. What are the two ways of harnessing energy from the oceans? **[CBSE Schools 2013–14]**
65. What is hydroelectricity? On what principle is it based? **[CBSE Schools 2013–14]**
66. Mr. Rahul always makes it a point to go to his office by a car pool using diesel car. His friends call him a miser. He doesn't bother and advises others to follow him.
- (a) Is the fuel used in the car renewable or non-renewable?
- (b) Write two values that you think are depicted by Rahul's efforts. **[CBSE Schools 2013–14]**
67. Name two different ways in which solar energy can be harnessed. **[CBSE Schools 2013–14]**
68. Nidhi went to her village and found that villagers were protesting against setting up of a nuclear power plant by the government? Nidhi supported them in their protest.
- (a) List a few concerns which lead the villagers to protest, (any two)

- (b) Why is the government in favor of setting up the nuclear power plant?
- (c) What are the values shown by Nidhi? **[CBSE Schools 2013-14]**
69. Write any four features of a good source of energy. Write any two disadvantages of using fossil fuels. **[CBSE Schools 2013-14]**
70. Farmers are using a large number of Pesticides and fertilizers in their fields to increase crop production and to enhance their profits. But by doing so they are causing damage to the soil as well as to the environment. **[CBSE Schools 2013-14]**
- (i) Do you agree with this statement? Explain.
- (ii) Why should we avoid eating fruits and vegetables without washing them properly?
71. Explain three disadvantages of burning fossil fuels. **[CBSE Schools 2013-14]**
72. (a) Name the device used to convert:
- (i) Solar energy into heat (ii) Solar energy into electricity
- (b) Mention two limitations of solar energy. **[CBSE Schools 2013-14]**

Chapter Test

Magnetism

Maximum Marks 30**Maximum Time: 1 hr.**

1. Which device is used to measure electric current through a resistor in a circuit? [2]
2. (a) How is the direction of magnetic field at a point determined? [3]
(b) What happens to the field lines pattern if the magnet is broken into two halves?
3. Under what conditions permanent electromagnet is obtained if a current carrying solenoid is used? Support your answer with the help of a labelled circuit diagram. [3]
4. Distinguish between alternating and direct current. Show both of them graphically. Give one advantage of alternating current over direct current. What is the frequency of AC in India? [4]
5. What is the commercial unit of energy? Derive its relation with SI unit of energy. A bulb is marked 25 W, 220 V. It is used for 10 h daily. Calculate its resistance, while glowing and energy consumed in kWh per day. [4]
6. How is electric fuse made? How is it connected? What is the function of electric fuse? [4]
7. (a) Define electromagnetic induction (EMI). [5]
(a) Give one application of electromagnetic induction.
(b) Describe an activity to demonstrate EMI.
8. (a) What is an electromagnet? [5]
(b) Give uses of electromagnets.
(c) How can the strength of electromagnet be increased?

For Solutions: www.pioneermathematics.com/latestupdates

Chapter Test

Sources of Energy

Maximum Marks 30**Maximum Time: 1 hr.**

1. What is biogas? [1]
2. Discuss the drawbacks of nuclear energy. [2]
3. Give one advantage and one limitation of solar cell. [2]
4. What problems are associated with construction of dams? [3]
5. What are the environment consequence of using fossil fuels? Suggest the steps to minimise the pollution caused by various sources of energy including non-conventional sources of energy. [3]
6. Expand OTEC. How does it work? [3]
7. (a) What are the energy conversions in a wind energy farm? [3]
(b) What condition is necessary for wind farm to produce energy?
(c) Why are wind farm expensive to maintain?
8. What are (a) solar concentrators [4]
(b) solar cell panels?
(c) How are they an improvement on simple devices? Why are solar cell panels costly?
9. (a) If energy in the universe is constant, why is the world yelling out for energy crisis? What does judicious use of energy imply? [4]
(b) You have wood, kerosene and LPG. Which one source of energy would you use for cooking your food and why? Give the reason.
10. (a) What type of mixture are separated by fractional distillation? Name the fraction of crude oil whose boiling point is more than 350°C . Where is it mostly used as fuel?
(b) A student has set up a solar cooker in a box by using a black painted aluminium sheet, a black cooking vessel, some glass wool, a glass sheet and a mirror plate. What is the role of each item used in the solar cooker? [5]

For Solutions: www.pioneermathematics.com/latestupdates