PHYSICS

BOOKS - ICSE

ELECTRICITY AND MAGNETISM

Test Yourself Objective Questions Write True Or False For Each Statement

1. A current carrying coil when suspended freely can rest in any direction.

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2. A coil carrying current behaves like a magnet.

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3. In an electromagnet, the core is made up of copper.

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4. An electric bell uses an electromagnet.

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5. An electromagnet with soft iron core is a temporary magnet.

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6. We use cell as the source of electricity to run an electric immersion rod.

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7. A torch bulb glows if the terminals of the bulb are connected to the terminals of a cell by the metallic wire.

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8. Wool is a conductor of electricity.

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9. Silver is an insulator of electricity.

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10. Our body is a conductor of electricity.

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11. For a circuit to be complete, every part of it must be made up of conductors.

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12. Assertion: Metals are good conductors of electricity

Reason:Metals conduct electricity in solid as well as in molten state

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13. The switch should not be touched with wet hands.

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14. A switch is an on-off device in an electric circuit.

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Test Yourself Objective Questions Fill In The Blanks

1. A magnet has ..... poles.

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2. Like poles..... each other and unlike poles .....

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3. An electromagnet is used to separate large mass of ..... scrap.

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4. The strength of magnetic field of an electromagnet is increased by inserting a core of .....

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5. In a torch, we use ..... as the source of electricity.

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6. To light a table lamp and to run a refrigerator, we use ..... as the source of electricity.

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7. A group of two or more cells is called a .....

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8. ..... pass electricity through them.

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9. ..... do not pass electricity through them.

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Test Yourself Objective Questions Matching

1. Match the following :

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Test Yourself Objective Questions Select The Correct Alternative

1. A freely suspended magnet rests in :

A. east-west direction

B. north-south direction

C. north-east direction

D. north-west direction

Answer:

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2. Electromagnets are made up of:

A. steel

B. copper

C. brass

D. soft iron

Answer:

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3. An electromagnet is used in :

A. electric oven

B. ammeter

C. electric bell

D. radio set

Answer:

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4. The purpose of armature in an electric bell is :

A. to make and break the circuit

B. to produce sound

C. to produce magnetic field

D. to provide spring action.

Answer:

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5. In a torch, the source of electricity is :

A. the bulb

B. the switch

C. the cell

D. the mains

Answer:

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6. Electricity can flow through :

A. wood

B. rubber

C. plastic

D. copper wire

Answer:

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7. Electricity does not flow through:

A. human body

B. animal's body

C. rubber

D. silver

Answer:

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8. We should not touch the switch with wet hands, otherwise :

A. electricity may pass through our body

B. electricity may not pass through the appliance

C. circuit may break

D. the switch may get off

Answer:

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Test Yourself Objective Questions Short Long Answer Questions

1. State two properties of a bar magnet.

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2. How will you test whether a given rod is a magnet or not?

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3. How will you test whether a given rod is made of iron or not?

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4. You are given two similar bars. One is a magnet and the other is of soft iron. How will you distinguish and identify them?

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5. You are given a magnet. How will you use it to find north-south direction at a place ?

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6. Describe a simple experiment to illustrate that like poles of two magnets repel each other while unlike poles attract.

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7. Poles exist in pairs. Comment on this statement.

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8. What is a magnetic compass ? State its use.

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9. Explain the meaning of the term, magnetic field'.

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10. What is an electromagnet ?

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11. Name the material of an electromagnet.

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12. Draw a labelled diagram to make a soft iron bar as an electromagnet. Describe in steps the procedure.

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13. You are given a U shaped soft iron piece, insulated copper wire and a battery. Draw a circuit diagram to make a horse shoe electromagnet.

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14. Name two factors on which the strength of magnetic field of an electromagnet depends.

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15. State two ways by which the strength of magnetic field of an electromagnet can be increased.

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16. State two common uses of electromagnets.

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17. Name a domestic device in which an electro magnet is used.

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18. Draw a neat and labelled diagram of an electric bell and describe its working.

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19. The incomplete diagram of an electric bell is given in Fig. Complete the diagram and label its different parts.

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20. What is declination? Draw a diagram to show the angle between the declination and true direction of geographic north.

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21. Define the term "current".

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22. Name four appliances which work using electricity.

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23. Name two sources of electricity.

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24. What is a battery ?

Watch Video Solution

25. What is an electric circuit ?

Watch Video Solution

26. Describe an experiment to show that electricity flows only if the circuit is complete and it does not flow if the circuit is incomplete.

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27. You are provided with a torch bulb, a cell and two plastic coated metal wires. Draw a diagram to show a complete circuit to light the bulb.

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28. In which of the following cases the bulb will glow:

(i) Only one terminal of a cell is joined with a metal wire to one terminal of the bulb.

(ii) Both terminals of the bulb are joined with two metal wires to one terminal of the cell.

(iii) One terminal of the cell is joined to one terminal of the bulb and other terminal of the cell to the other terminal of the bulb.

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29. Distinguish between conductors and insulators of electricity. Give two examples of each.

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30. Select conductors and insulators from the following: Glass, silver, copper, wood, paper, pure water, impure water, aluminium, iron, leather, plastic, steel, human body and ebonite.

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31. The following diagram (Fig) shows four circuits A, B, C and D. Each circuit has a cell and a torch bulb. Name the circuits in which the bulb will glow? Give reason to your answer.

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32. The diagram given below (Fig.) shows a bulb connected with a cell having terminals A

and B. Mark the direction of current in the bulb.

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33. State the function of each of the following in an electric circuit and draw its symbolic representation : (i) Switch and (ii) Cell.

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34. Draw a circuit diagram for a bulb connected to a cell with a switch. Mark arrows in the diagram to indicate the direction of flow of current.

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35. In which arrangement are the appliances connected in the electric circuit of our homes, Series or Parallel? Give one reason for your answer.

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36. State two precautions that you must take when switching on an electric circuit.

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Question Write T For True And F For False Correct The False Statements

1. Similar poles attract and dissimilar poles repel.

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2. A soft iron behaves like a magnet only when the wire around it carries current.

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3. The poles of a permanent magnet can be reversed easily.

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4. In an electric bell, when the metal strip gets attached to the electromagnet , it no longer touches the interrupter , and hence the circuit breaks.

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Question Choose The Correct Option To Fill In The Blanks

1. In solid conductors ..... (ions/electrons) carry the charge through the material.

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2. The presence and the direction of flow of electric current is detected by a device called ..... (ammeter/galvanometer).

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3. A ..... (lot of charged particles/potential difference) needs to be created for electric current to flow.

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4. Primary cells ..... (cannot/can) be recharged as chemical reactions within the cells are irreversible.

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5. Car battery consists of ..... (dry/wet) cells.

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Question

1. Name the following.

A path along which electrons can flow

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2. Name the following.

A circuit where there is a break such that electric current cannot pass through

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3. Name the following.

A device that is used to open or close a circuit

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4. If there is a single pathway for electric current to flow between the terminals of a battery then it is a

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5. Name the following.

The kind of circuits used to connect household electrical items

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Exercise Section I

1. Name the following.

The region where the magnetic properties of a magnet is maximum

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2. Name the following.

The branch of physics that deals with the magnetic effect of electric current

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3. Name the following.

Flow of electric charge

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4. Name the following.

The device which detects the presence and direction of electric current

Watch Video Solution

5. Name the following.

SI unit of current

Watch Video Solution

6. Name the following.

Sl unit of potential difference

Watch Video Solution

7. Name the following.

Two sources for producing potential difference

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8. Name the following.

Uninterrupted circuit through which electric charges can pass

Watch Video Solution

9. Name the following.

A device which resists the flow of charge in a circuit .

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Exercise Section I Choose The Correct Option

1. When a magnet is suspended freely, the pole pointing towards the South is called the

A. north pole

B. south pole

C. east pole

D. west pole

Answer:

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2. Permanent magnets are artificially made using an alloy of

A. copper

B. aluminium

C. soft iron

D. steel

Answer:

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3. In an electrolyte the particles which contribute to electricity are

A. electrons

B. protons

C. neutrons

D. ions

Answer:

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4. Car battery is a:

A. Wet cell

B. Can be recharged

C. Secondary cell

D. All of these

Answer:

 Watch Video Solution

5. If there is a single pathway for electric current to flow between the terminals of a battery then it is a

A. dry cell

B. wet cell

C. closed circuit

D. open circuit

Answer:

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6. A good conductor of electricity:

A. Diamond

B. Pure water

C. Tungsten

D. Dry air

Answer:

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7. Ohm is the SI unit of

A. voltage

B. electric current

C. potential difference

D. electric resistance

Answer:

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Exercise Section I Write T For True And F For False Correct The False Statements

1. When a wire is wound around a soft iron bar, and a current is passed through it, the soft iron bar behaves like a magnet.

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2. When an atom loses its electrons, it becomes negatively charged and is called a negative ion.

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3. The direction of conventional current is in the opposite direction as that of electrical charge.

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4. In a dry cell, instead of a liquid electrolyte, a moist paste of ammonium chloride is used as the electrolyte.

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5. Two bulbs, when connected in series, are brighter than a single bulb.

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6. Materials that have electrons that are free to move around in them are called bad conductors of electricity.

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Exercise Section I Choose The Correct Option To Fill In The Blank

1. Like charges attract and unlike charges repel.

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2. Electromagnet is a .... (temporary/permanent) magnet.

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3. An electric bell is a very simple electric device in which ..... (a magnet/an electromagnet) plays a vital role.

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4. Electrons flow in a conductor from one point to another due to a..... (potential/electronic) difference between the two points.

Watch Video Solution

5. Higher the potential difference, the ..... (more/less) electron flow will be.

Watch Video Solution

6. Secondary cells .....(can/cannot) be recharged.

Watch Video Solution

7. .....(All/Not all) cells are dry

Watch Video Solution

8. If a component in one of the paths does not work, charges continue to flow through the other path in a.....(parallel/series) circuit

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9. Impure water is .....(a conductor/an insulator) of electricity

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10. Give Reason

If you dip a magnet into a bowl with iron filings, most of the filings get attracted to the ends of the magnet .

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11. Give Reason

Repulsion is a sure test for magnetism.

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12. Give Reason

Dry cells are called so.

Watch Video Solution

13. Give Reason

Dry cells are used widely in spite of their short life.

Watch Video Solution

14. Give Reason

Our household circuits are connected in parallel.

Watch Video Solution

15. Give Reason

Conducting wires are made of metals.

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Exercise Section I Distinguish Between

1. Distinguish between North pole and south pole of a magnet

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2. Distinguish between Conduction electrons and ions

Watch Video Solution

3. Distinguish between Galvanometer and ammeter

Watch Video Solution

4. State three differences between primary and secondary cells.

Watch Video Solution

5. Distinguish between Dry and wet cells

Watch Video Solution

6. Differentiate between Open and Closed circulatory system.

Watch Video Solution

7. Distinguish between Series and parallel circuit

Watch Video Solution

8. Distinguish between conductors and insulators of electricity. Give two examples of each.

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Exercise Section I Short Answer Questions

1. How do you find the north pole and south pole of a magnet?

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2. What is an electric current? What is responsible for it in solids and in liquids?

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3. What do you mean by conventional current?

Watch Video Solution

4. What is a secondary cell made of?

Watch Video Solution

5. What is a cell? How does it produce electric current?

Watch Video Solution

6. What are the two types of resistors?

Watch Video Solution

7. Distinguish between conductors and insulators of electricity. Give two examples of each.

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8. Draw the symbols for battery, open switch, bulb, and resistor.

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Exercise Section I Long Answer Questions

1. How will you test whether a given rod is a magnet or not?

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2. What is electromagnetism and how do you make an electromagnet?

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3. Explain how electrons flow in a conductor?

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4. Draw a circuit diagram for series and parallel circuit with three bulbs.

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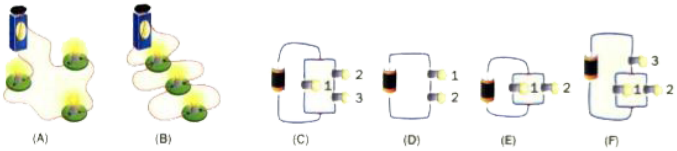
Exercise Picture Study

1. From the figures given below, identify the bulbs connected in parallel and in series.



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2. How is the object given in Figure A different from the ones in Figure B.

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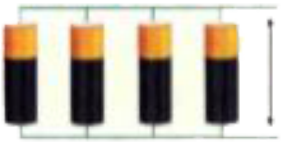
3. Which is the correct way to connect batteries in series .

(A)

(B)



(C)

(D)

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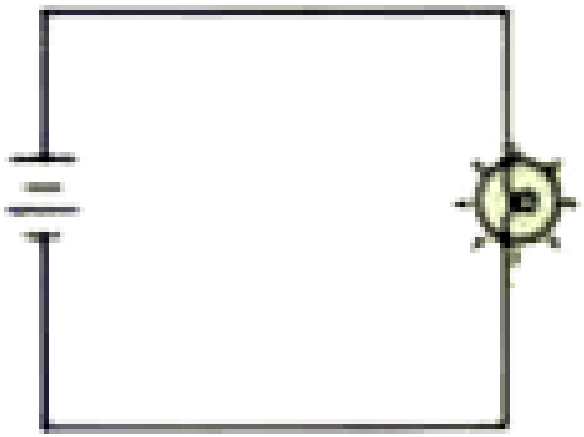
4. Mark the direction of conventional current flow and electrical charge flow in the diagram

given below. Are they in the same direction?



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