



PHYSICS

BOOKS - BEITIANS

ELECTRICITY

Formative Worksheet

1. If a current of 10 mA passed through your cell phone battery charger wire for 10 minute,

what quantity of electric charge is transferred through the wire to the battery?



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2. How much current does your laptop consume if 100 C of charge is transferred through the charger wire in 4 second?



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3. How much time is required for 10 Coulombs of charge to flow past a point if the current is 2 amperes?



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4. Which of the following materials is a good conductor of electricity?

A. Plastic

B. Crok

C. Soil

D. Iron

Answer:



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5. The handle of every electrical repairing tool is covered by a certain material to prevent the user from getting an electrical shock.

Which of the following materials cannot be

used to cover the handle of an electrical repairing tool?

A. Tin

B. Glass

C. Wood

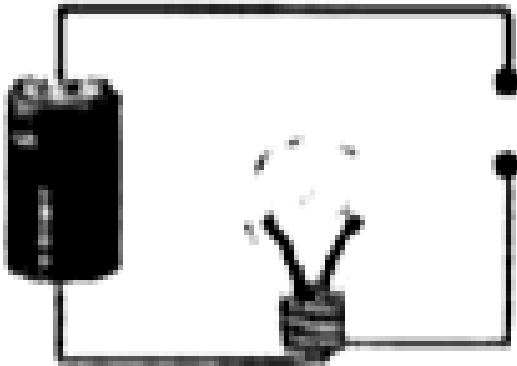
D. Rubber

Answer:



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6. Mason constructs the circuit shown in the figure. He leaves a gap in the circuit to test the conductivity of various materials.



On inserting which of the following materials in the gap will the bulb not light up?

A. Wood

B. Iron

C. Aluminium

D. Silver

Answer:



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7. Which of the following objects is an insulator?

A. Iron rod

B. Plastic cup

C. Nickel coin

D. Steel spoon

Answer:



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8. Martin is constructing an electrical circuit.

He notices that all electrical metal wires are

covered with plastic. Electrical metal wires are

covered because plastics are good

A. Electrical conductors

B. Electrical insulators

C. Heat generators

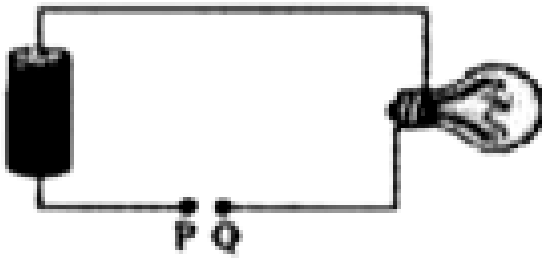
D. Heat absorbers

Answer:



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9. Tommy sets up an electrical circuit as shown in the figure. He connects points P and Q with different materials.



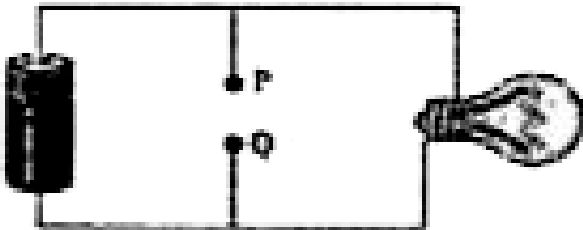
The bulb will light up when points P and Q are connected by a plate made of

- A. Iron
- B. Glass
- C. Wood
- D. Plastic

Answer:

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10. Brad sets up an electrical circuit as shown in the figure. He connects points P and Q of the circuit with four different rods made of four different materials - glass, wood, copper, and asbestos.



The bulb in the circuit will not light up when points P and Q are connected with

A. Glass rod

B. Wood rod

C. Copper rod

D. Asbestos rod

Answer:



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11. Ronald wants to make electrical wires with a wire drawing machine. He considers using steel, copper, aluminium, and plastic as raw

material.

The material that Ronald cannot use to make electrical wires is

A. Steel

B. Copper

C. Plastic

D. Aluminium

Answer:



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12. Margaret notices that there are ceramic pulley-like structures attached to the overhead electrical lines near her house. Electrical wires pass over the pulleys as shown in the given figure.

These pulleys are used as electrical

A. Insulators

B. Generators

C. Conductors

D. Transformers

Answer:



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13. Which of the following materials cannot be used as an electrical insulator?

A. Wood

B. Rubber

C. Plastic

D. Graphite

Answer:



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14. John is repairing the electrical line of his house. As a precautionary measure, he stands on a wooden plank. John uses the wooden plank because wood is

- A. An electrical conductor
- B. An electrical insulator
- C. A heat conductor

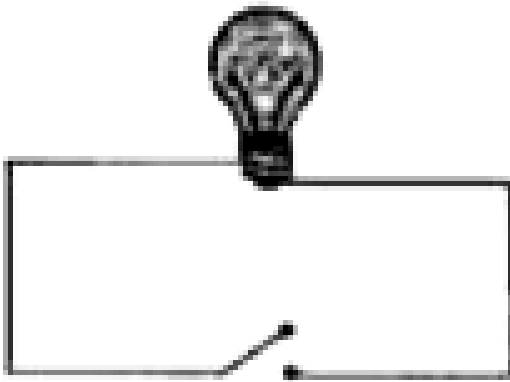
D. A heat absorber

Answer:



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15. The given figure shows a simple circuit consisting of a bulb and a switch.



On closing the switch, the bulb will

- A. Glow
- B. Not glow
- C. Glow after some time
- D. Glow only for a short time

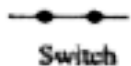
Answer:





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16. The given figure shown four wires, a switch, a bulb, and a battery.



Switch

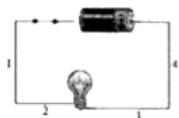


Bulb



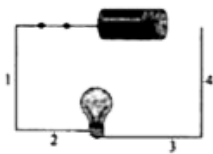
Battery

The bulb will glow when the given components are connected as

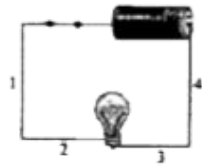


A.

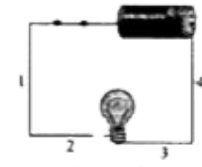
B.



C.



D.

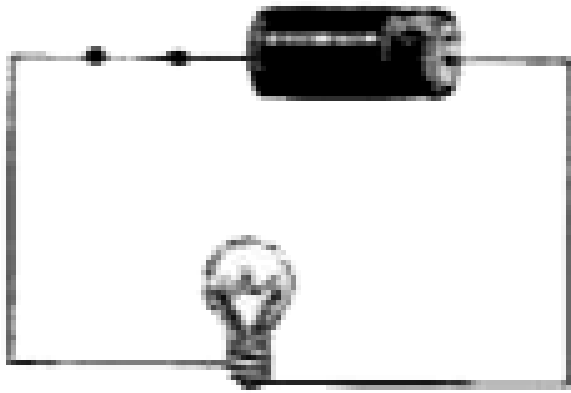


Answer:



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17. the given figure shown a simple circuit involving a battery, a switch, and a bulb.



If the terminals of the battery are reversed, then the bulb will

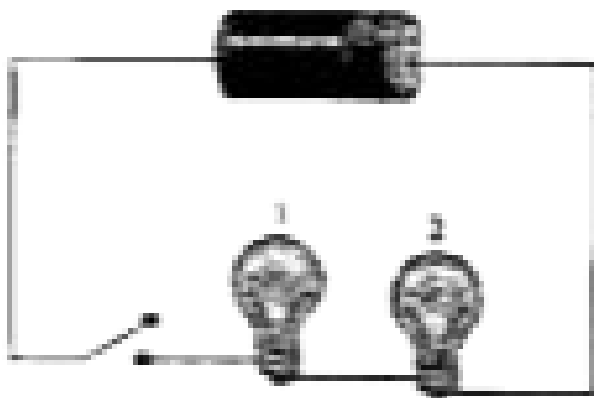
- A. Glow
- B. Not glow
- C. Glow for a short time
- D. Glow after some time

Answer:



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18. A simple electrical circuit containing two bulbs and a battery is shown in the given figure.



If bulb 1 fuses on closing the switch, then the bulb 1 will

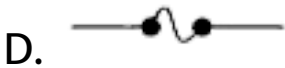
- A. Keep glowing
- B. Stop glowing
- C. Glow brightly
- D. Glow dimly

Answer:



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19. The symbol for a fuse is



Answer:



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20. The symbol for a ammeter is



Answer:



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21. In a parallel circuit of bulbs

A. Same current exists in all the bulbs

B. Same voltage exists in all the bulbs

C. Failure of any bulb leads to a break
down in the circuit

D. All of above

Answer:



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22. MATCH THE FOLLOWING

Column-I

a) Cell

b) Resistance

c) Closed switch

d) Voltmeter

Column-II



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23. When negative terminal of a cell is connected to the positive terminal of the next cell are said to be in

A. Series

B. Parallel

C. Both (A) and (B)

D. Neither (A) nor (B)

Answer:



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24. When electric cells are connected in series the electromotive force

A. Increase

B. Decreases

C. Remain same

D. become zero

Answer:



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25. Choose the correct option

A. The path along which electric current flows is called electric circuit

B. Coating of a conductor with a non-conductor is called insulator

C. The materials which allow the electric current pass through them are called conductors

D. The materials which allow the electric current pass through them are called non-conductors

Answer:



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26. If a voltage V is applied across the bulbs in series, then

- A. The voltage applied is divided among the bulbs
- B. The same current exists in all the bulbs
- C. The same voltage exists in all the bulbs
- D. The current is divided among the bulbs

Answer:





27. Greater potential difference (or emf) is obtained in the circuit when cells are connected in

A. Series

B. Parallel

C. Both (A) and (B)

D. Neither (A) nor (B)

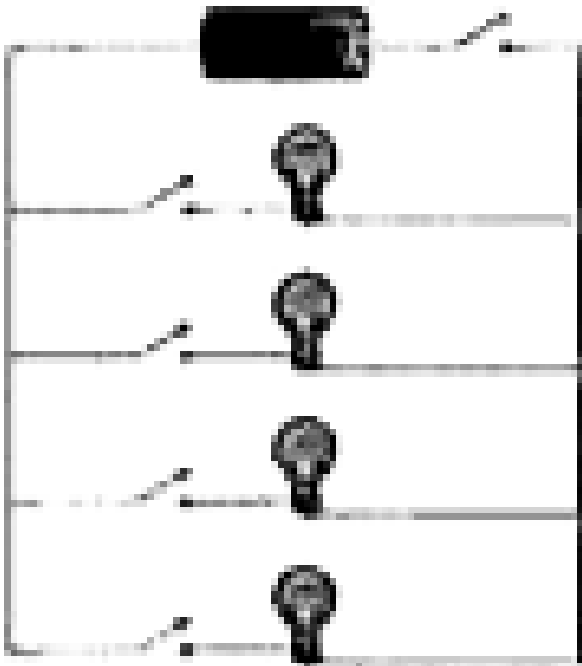
Answer:



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Conceptive Worksheet

1. The given figure shows a simple circuit containing four bulbs and five switches along with a battery.



What is the minimum number of switches that must be closed to light at least one bulb?

A. 1

B. 2

C. 3

D. 4

Answer:



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2. The handle of every electrical repairing tool is covered by a certain material to prevent the user from getting an electrical shock.

Which of the following materials cannot be used to cover the handle of an electrical repairing tool?

A. Tin

B. Glass

C. Wood

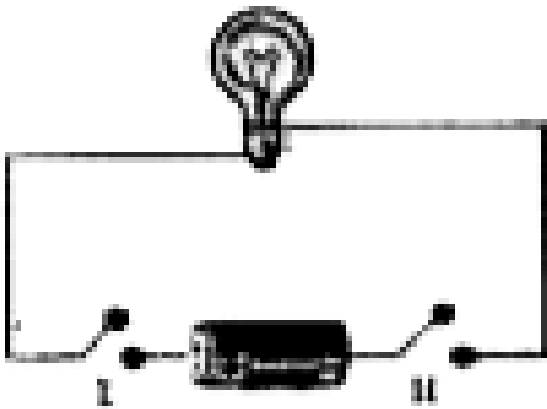
D. Rubber

Answer:



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3. The given figure shows a simple circuit that consists of a bulb, a battery, and two switches.



In the given circuit, when switch I is closed, the bulb will

A. Glow

B. Flicker

C. Not glow

D. Flicker after some time

Answer:



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4. Which of the following materials is a good conductor of electricity?

A. Plastic

B. Cork

C. Soil

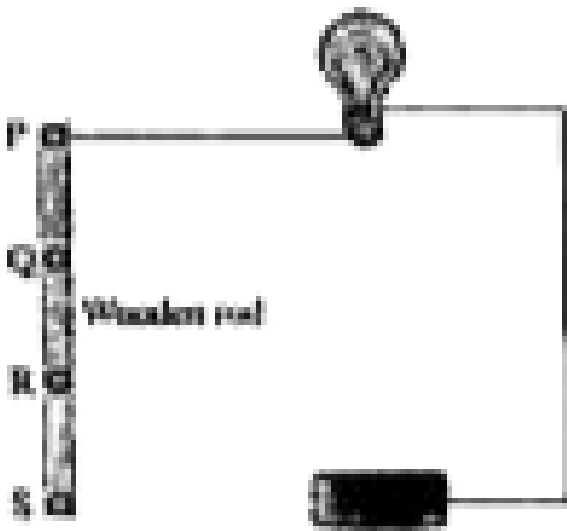
D. Iron

Answer:



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5. Robert constructs an electrical circuit as shown in the given figure. Four different points are labeled as P, Q, R, and S on the wooden rod.



In the given circuit, the bulb will glow when the positive terminal of the battery is connected to the point

A. P

B. Q

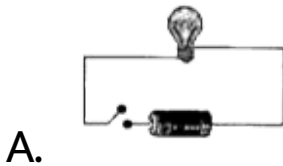
C. R

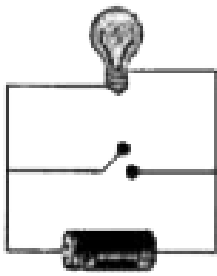
D. S

Answer:

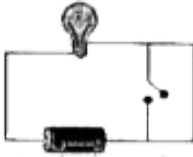
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6. In which of the following circuits can the electrical bulb be operated using the switch in the circuit?

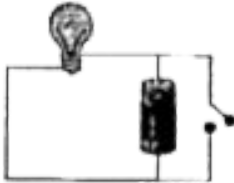




B.



C.



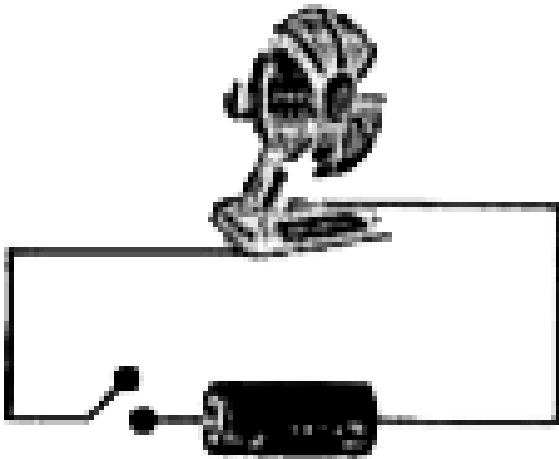
D.

Answer:



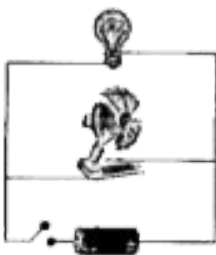
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7. The circuit shown in the given figure consists of a fan, a switch, and a battery. Andrew wants to connect a bulb in parallel to the fan.

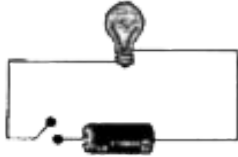


Andrew should connect the bulb in the electrical circuit as shown in figure

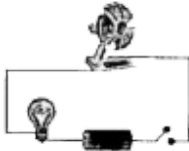
A.



B.



C.



D.

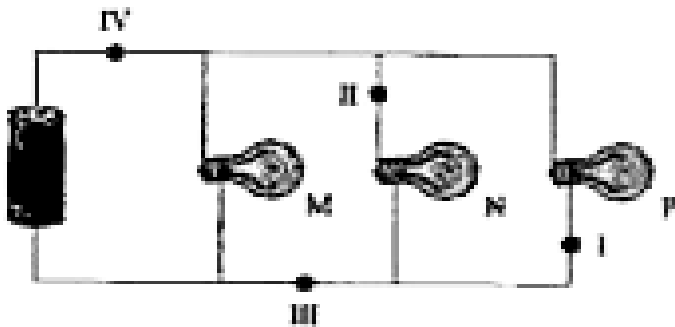


Answer:



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8. Alex constructs the electrical circuit shown in the given figure in his school laboratory. His teacher asks him to add a switch to the circuit such that only bulbs N and P are operated by it.



Alex should add the switch at point

A. I

B. II

C. III

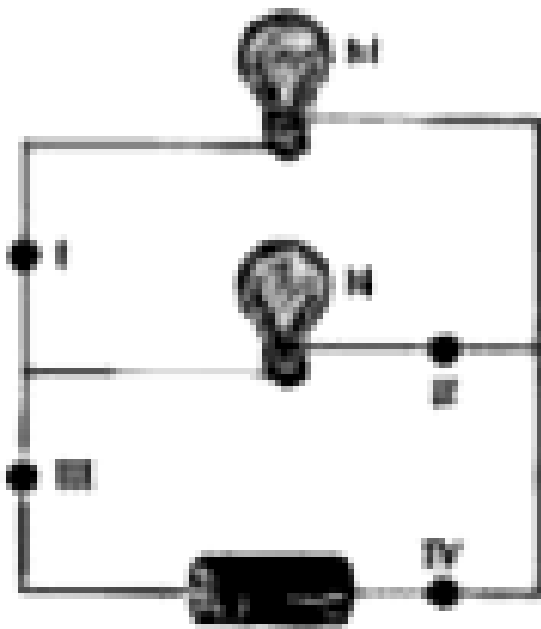
D. IV

Answer:



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9. The given figure shows a simple electrical circuit that consists of two bulbs, and a battery. One switch has to be added to the circuit in order to operate only bulb M.



This switch must be placed at point

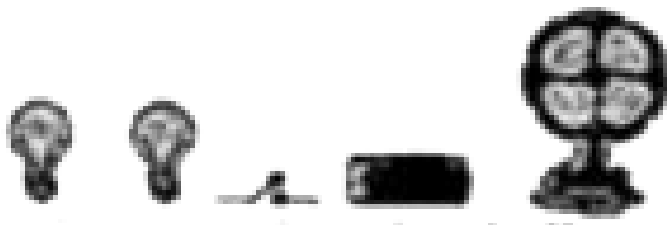
- A. I
- B. II
- C. III
- D. IV

Answer:

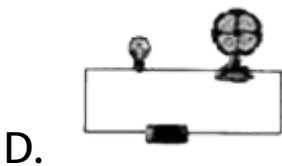
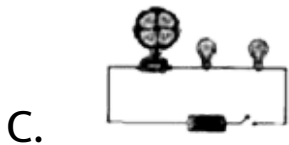
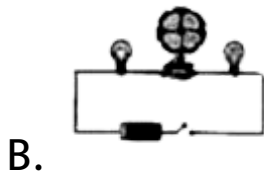


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10. The given figure shows two bulbs, a switch, a battery, and a fan. Using all the components, David makes a simple electrical circuit putting a bulb on either sides of the fan.



Which of the following circuit diagrams represents the one made by David?



Answer:



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11. The given figure shows two bulbs, a switch, a battery. Martha makes a simple circuit using all the given components. The circuit is such that a bulb is placed on either sides of the switch.



Which of the following circuit diagrams represents the one made by Martha?

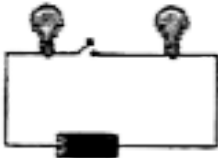
A.



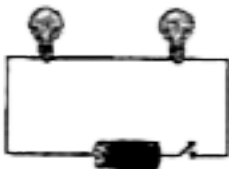
B.



C.



D.

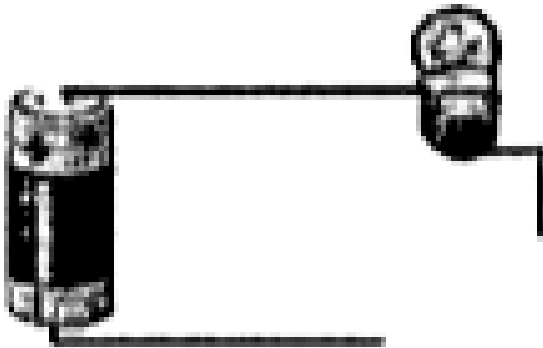


Answer:



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12. An electrical circuit made by a student is incomplete because one of the wires is too short to connect with the other wire as shown in the given figure. In order to glow the bulb, he has to connect the open end by inserting an object between them.



Which of the following objects should the students insert between the open ends?

A. Nail

B. Bottle

C. Glass sheet

D. Rubber band

Answer:



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13. Which of the following objects can conduct electricity?



A.



Eraser

B.



C.

Matchstick

D.

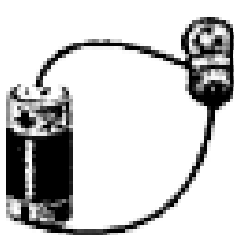


Answer:

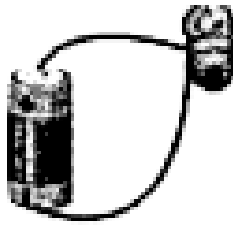


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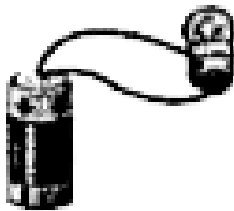
14. The given figure represents four circuit arrangements, I, II, III and IV. Each circuit consists of an electric cell and a torch bulb.



I



II



III



IV

The bulb may glow in the circuit arrangements labelled as

A. I and II

B. II and III

C. III and IV

D. IV and I

Answer:



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15. An electric cell has ___i___ terminal(s). The metal cap of an electric cell represents its ___ii___ terminal. The information in which alternative completes the given statements?

A.

i	ii
two	negative

B.

i	ii
two	positive

C.

i	ii
one	negative

D.

i	ii
one	positive

Answer:



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16. The path along which electricity travels is called a _____

- A. Electric circuit
- B. electric shock
- C. Both (A) and (B)
- D. neither (A) nor (B)

Answer:



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17. Statement I : Switch is used to close and open an electric circuit

Statement II : When switch is closed, then circuit is closed and when is opened, then circuit is open circuit

A. Both Statements are true, Statement - II

is the correct explanation of Statement -

I.

B. Both Statements are true, Statement - II

is not correct explanation of Statement -

I.

C. Statement - I is true, Statement - II is false.

D. Statement - I is false, Statement - II is true.

Answer:



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18. Which of the following is used source of electrical energy

A. Electric cell

B. Dry cell

C. Ammeter

D. Voltmeter

Answer:



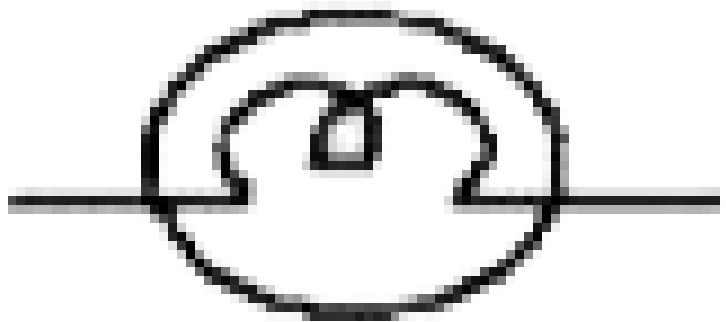
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Summative Worksheet

1. Electric current flows from ___ terminal to ___ terminal outside the cell through the circuit.



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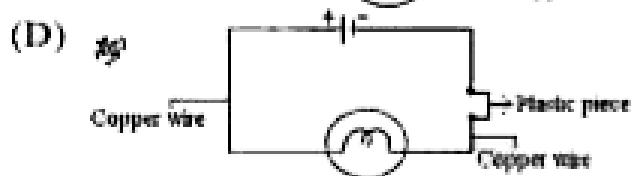
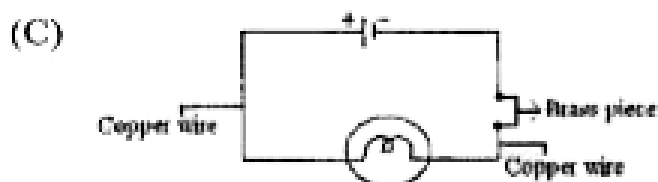
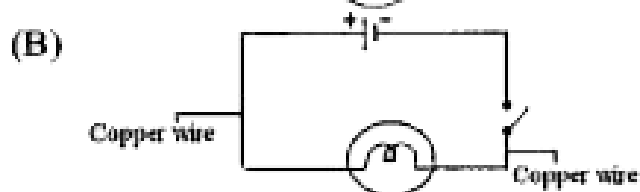
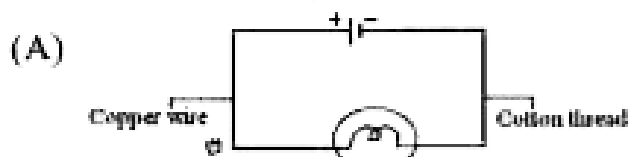
2.

represents.



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3. In which case, bulb glows in the circuit.



A. A

B. B

C. C

D. D

Answer:



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4. Is pure water a conductor of electricity ?



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5. Electric current flows in ___ direction only.



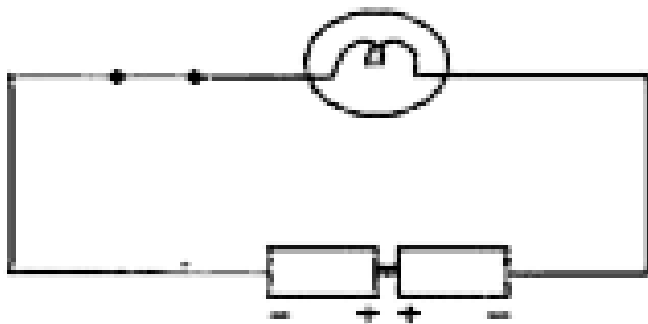
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6. A cell has two terminals, one terminal is on the metal base, second terminal is on ____.



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7. Bulb in this circuit doesn't glow, why?





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8. Fill in the blanks .

A device that is used to break an electric circuit is called _____ .



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9. An electric cell has _____ terminals.



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10. The SI unit of electric current is



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11. Match the following

- | | |
|----------------------|--|
| (i) Battery | (a) Rechargeable Batteries |
| (ii) Accumulator | (b) A combination of two or more cells |
| (iii) Closed Circuit | (c) An unbroken path of electricity |
| | (d) The path along which electricity travels |

A. i - b, ii - c, iii - d

B. i - a, ii - b, iii - c

C. i - b, ii - a, iii - c

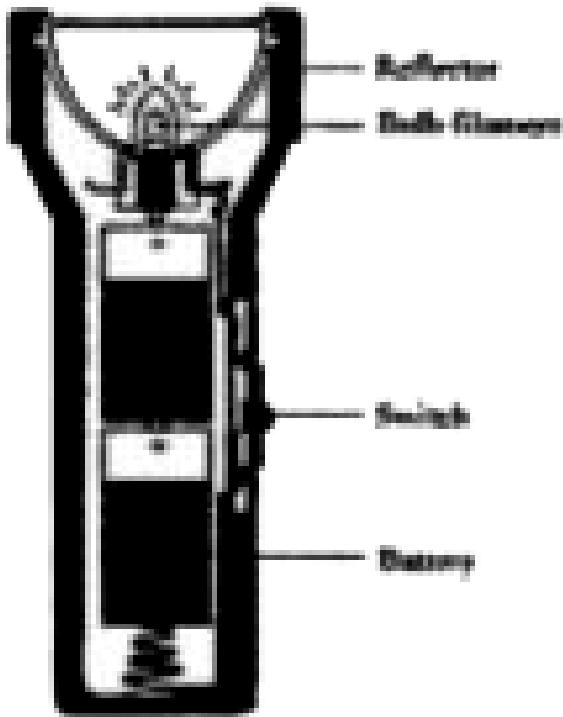
D. i - c, ii - d, iii - a

Answer:



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Hots Worksheet



1.

Among the labelled parts, current does not flow through the

A. Battery

B. Switch

C. Filament

D. Reflector

Answer:



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2. The given figure shows a circuit with a cell connected to a bulb and a switch.



When the switch is closed, the bulb lights up because the

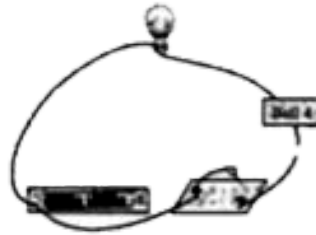
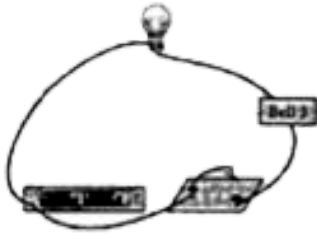
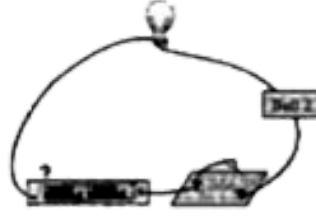
- A. Switch produces electricity
- B. Switch produces electricity
- C. Connecting wires produce electricity
- D. Circuit completes on closing the switch

Answer:



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3. Atul has constructed four electric circuits, each consisting of a bell, a bulb, switch and a cell. The bells of the circuits are labelled as 1, 2, 3 and 4, as shown in the given figure.



Which bell will produce a sound when the switch is closed?

A. Bell 1

B. Bell 2

C. Bell 3

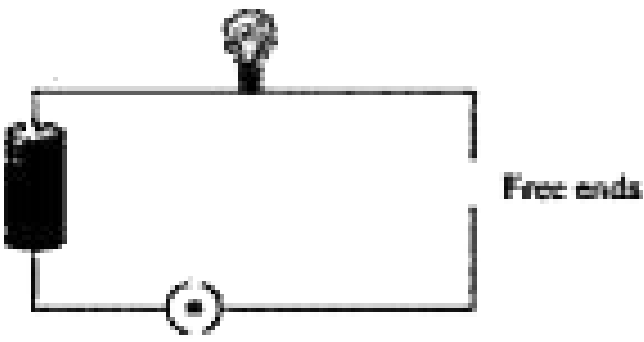
D. Bell 4

Answer:



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4. Suraj has connected a simple electric circuit. It consists of a bulb, a switch, and a cell, as shown in the given figure. However, the lengths of the wires are not sufficient. Hence, this circuit has two free ends. He has four objects namely a wooden gilli, a match stick, a pen cap, and a nail.



To glow the bulb, Suraj should connect the free ends with the

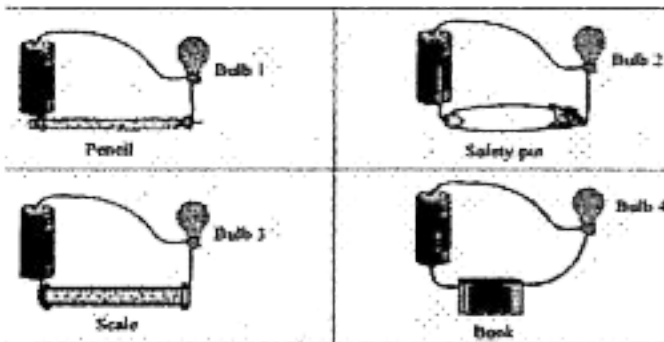
- A. Nail
- B. Matchstick
- C. Pen cap
- D. Wooden gilli

Answer:





5. Raju has constructed four different circuits with four bulbs, four cells, and four different objects, as shown in the given figure.



Which bulb will glow in the given circuits?

A. Bulb 1

B. Bulb 2

C. Bulb 3

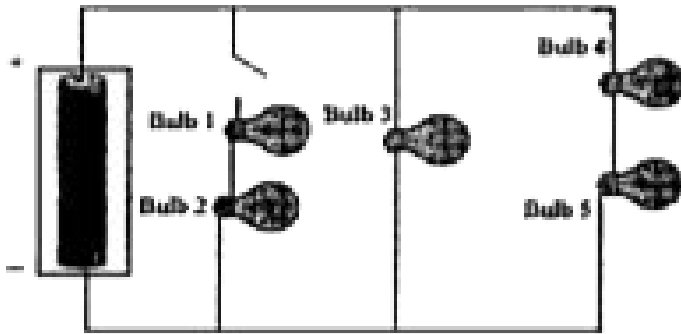
D. Bulb 4

Answer:



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6. Raju bought five similar bulbs and connected them with two cells to construct an electric circuit. The given figure shows the circuit constructed by Raju.



In the given circuit, the bulbs that would not glow are

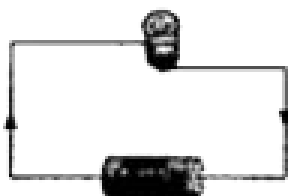
- A. Bulb 1 and Bulb 2
- B. Bulb 2 and Bulb 3
- C. Bulb 3 and Bulb 4
- D. Bulb 4 and Bulb 5

Answer:

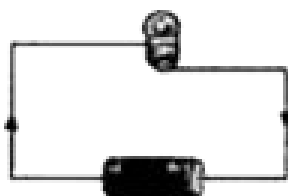


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7. The given figure shows two circuits, each consisting of a bulb and a cell. M and N are the terminals of cell I and S and T are the terminals of cell II. The direction of current in the respective circuits is indicated by arrowheads.



Cell I



Cell II

Terminals M and T of the cells are

A. Both positive

B. Both negative

C. Positive and negative respectively

D. Negative and positive respectively

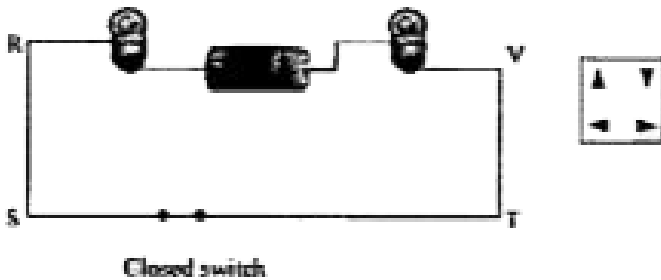
Answer:



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8. A circuit is constructed using two torch bulbs and a cell, as shown in the given figure at the left. The figure at the right shows four

arrows whose tips show their respective directions. These arrows have to be placed on each wire segments RS, RV, ST and TV respectively, according to the directions of current.



The given arrows that can be placed on wire segments RV, VT, ST, and RS are respectively

A. \triangleleft , ∇ , \triangleright , and Δ

B. \triangleleft , Δ , \triangleright , and ∇

C. \triangleright , ∇ , \triangleleft , and Δ

D. \triangleright , Δ , \triangleleft , and ∇

Answer:



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9. Various parts on the outer surface of an electric cells are labelled as I, II, III and IV respectively in figure (a). In figure (b), an incomplete circuit is shown. M and N are the free ends of this circuit.

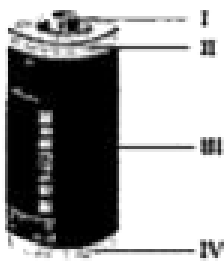


Figure (a)

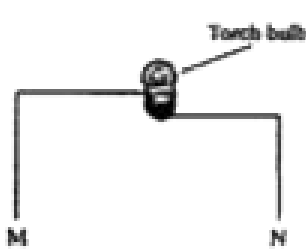


Figure (b)

To make the bulb glow, free ends M and N of the circuit should be respectively connected to

- A. I and II
- B. II and III
- C. III and IV
- D. IV and I

Answer:





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10. Which of the following of a torch is not paired with its function?

A.

Part of a torch	Function
Bulb	Emits light

B.

Part of a torch	Function
Switch	Breaks the circuit

C.

Part of a torch	Function
Reflector	Completes the circuit

D.

Part of a torch	Function
Cell	Provides energy

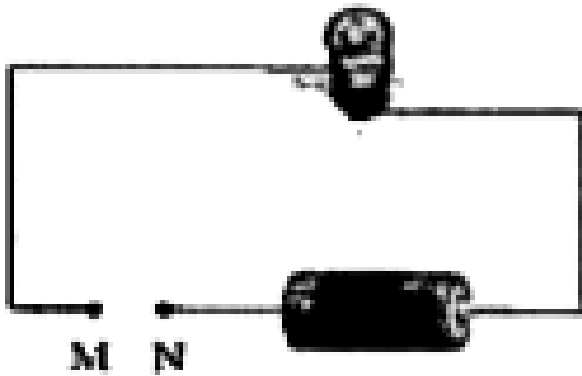
Answer:



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11. Raj performs an experiment to know the conducting nature of some of the objects using a circuit, as shown in the given figure. He inserts some objects one by one between M and N and observes whether the bulb glows or not.

The objects that he inserted are eraser, key, plastic scale, glass bangle, bottle cap, nail, thermocol sheet, and wallet.



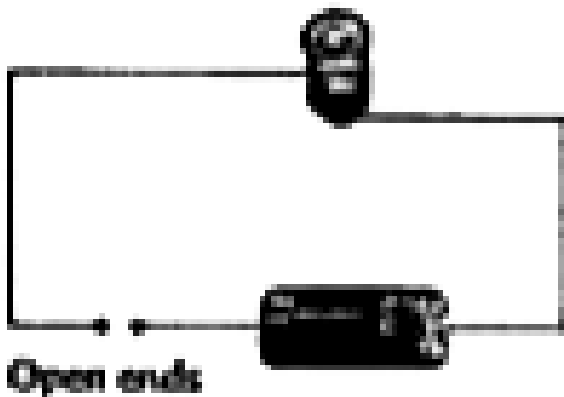
Raj will be able to glow the bulb if he inserts

- A. Key and nail respectively
- B. Key, nail and wallet respectively
- C. Bottle cap and thermocol sheet respectively
- D. Eraser, scale, bangle and bottle cap respectively

Answer:

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12. The schematic diagram of an open circuit is shown in the given figure.



Which of the following objects is inserted tightly in the gap to make the bulb glow?

A. Key

B. Cork

C. Plastic bottle cap

D. Thermocol sheet

Answer:



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lit Jee Worksheet I Single Correct Answer Type

1. In wrist watches ___ are used.

A. Dry Cells

B. Button Cells

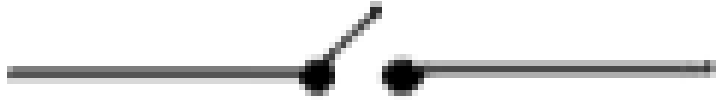
C. Battery

D. None

Answer:



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2.

represents.

A. Electric Switch

B. Battery

C. Cell

D. Fuse

Answer:



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3. Electric current flows from ___ terminal to ___ terminal outside the cell through a circuit.

A. Positive, Negative

B. Negative, Positive

C. Both

D. Cannot say

Answer:



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4. An electric cell converts ___ energy into electrical energy.

A. Chemical

B. Mechanical

C. Wind

D. Light

Answer:



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5. Which of the following energy conversions take place in a torch.

A. Electrical \rightarrow Chemical \rightarrow Light

B. Chemical \rightarrow Electrical \rightarrow Light

C. Electrical \rightarrow Light \rightarrow Chemical

D. Light \rightarrow Chemical \rightarrow Electrical

Answer:



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6. Which of the following is an insulator?

A. Pure Water

B. Impure Water

C. Human Body

D. Earth

Answer:



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7. Car battery and mobile phone battery are rechargeable. Hence these are called ___.

- A. Dry Cells
- B. Accumulators
- C. Button Cells
- D. None

Answer:



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8. There are two types of charges, they are ____ and ____.

- A. Positive & Neutral
- B. Negative & Neutral
- C. Positive & Negative
- D. None

Answer:



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9. The S.I. unit of electric charge is _____

A. Ampere

B. Volt

C. Newton

D. Coulomb

Answer:



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10. The shorter, thicker vertical line in the symbol of Cell represents.

- A. The positive terminal
- B. The negative terminal
- C. The direction of current
- D. All of these

Answer:



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11. Photovoltaic cells produce electricity by using.

A. Wind Energy

B. Solar Energy

C. Geothermal Energy

D. Mechanical Energy of Water

Answer:



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12. Choose the letter of the best answer

What happens to a circuit when the switch is off?

- A. The circuit is complete
- B. There is a gap in the circuit
- C. Electricity flows continuously
- D. Electricity flows discontinuously

Answer:



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1. The symbols for switch



Answer:



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2. Which of the following are conductors?

A. Silver

B. Copper

C. Aluminium

D. glass

Answer:



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3. Which of the following are insulators?

A. Glass

B. Plastic

C. Wood

D. Silver

Answer:



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1. If there is a current of 10 amperes in a circuit for 10 minutes, what quantity of electric charge flows in through the circuit?



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2. How much current must there be in a circuit if 100 coulombs flow past a point in the circuit in 4 seconds?



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lit Jee Worksheet Iv Integer Type

1. The current passing through a conductor is 5 ampere. Then the charge that passes through that conductor in 5 minute is ____ Coulomb.



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2. If 60 coulomb of charge passes through a cross section of a conductor in 4 se, the average current is ____ A



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3. A light ray is incident on a plane mirror making an angle of 45° with respect to the surface of the mirror. The value of the angle between incident ray and reflected ray is ____ $^\circ$



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lit Jee Worksheet V Matrix Matching

1. MATCH THE FOLLOWING

- (A) Conductor
- (B) Insulator
- (C) Outside the cell through circuit
- (p) Wood
- (q) Graphite
- (r) Electric current flows from positive to negative
- (s) Electric current flows from negative to positive



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2. Match the following

- (A) Solar panels
- (B) Cells
- (C) Windmills
- (D) Dams
- (p) Wind energy into electrical energy
- (q) Heat energy into electrical energy
- (r) Chemical energy into electrical energy
- (s) Solar energy into electrical energy
- (t) Potential energy of water into electrical energy



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