PHYSICS

BOOKS - BEIITIANS

ELECTRIC CURRENT AND ITS EFFECTS

Formative Worksheet

1. A flow of 10^7 electrons per second in a conducting wire constitutes a current of

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2. If the electronic charge is 1.6×10^{-19C}, then find the number of electrons passing through a section of a wire per second, when the wire carries a current of 4 ampere.

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3. A polythene piece rubbed with wool is found to have a negative charge of 3.2×10^{-7}C (i) Estimate the number of electrons transferred.

(ii) Is there a transfer of mass from wool to polythene ?

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4. A person combs his hair on a dry day. The comb causes 10^{22} electrons to leave the person's hair and stick to the comb. Calculate the charge the comb carries.

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5. A current of $0.5A$ is drawn by a filament of an electric bulb for 10 minutes. Find the amount of electric charge that flows through the electric circuit.

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6. An electric bulb draws a current of 0.2 A when the voltage is 220 Calculate the amount of electric charge flowing through it in one hour.

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7. Show that one ampere is equivalent to flow of 6.25×10^{-18} elementary electrons per second ? Charge on electron $= 1.6 \times 10^{-19} C$.

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8. 10^{20} electrons, each having a charge of `1.6xx10^(-19) C, pass from a point A towards another point B in 0.1 s. What is the current in ampere ? What is its direction ?

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

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11. A body has a negative charge of 1 coulomb. It means that it has

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12. One million electrons are added to glass rod. The total charge on the rod is

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13. A conductor carries a current of 2A. How long will it take for 1800C of electricity to flow

through a given cross-section ?

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14. How many electrons flow through a light bulb each second if the current through the bulb is 1.6A ?

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15. A current of 1.5A exists in a conductor whose terminals are connected across a potential

difference of 100 volt. Find a) the total charge of transferred in one minute.

b) the work done in transferring the charge.

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16. A polythene piece rubbed with wool is found to have a negative charge of $6 \times 10^{-7} C$. The number of electrons transferred to polythene from wool is

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17. When a piece of polythene is rubbed with wool, a charge of $-2 \times 10^{-7} C$ is developed on polythene. What is the amount of mass, which is transferred to polythene.

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18. An electric cell does 5 J of work in carrying 10 C charge around a closed circuit. The electromotive force of the cell is _____.

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19. A work of 100 joule is performed in carrying a charge of -5 coulomb from infinity to a particular point in an electrostatic field. The potential of this point is _____.

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20. The work done in moving a charge of 20 C from A to B over a distance of 0.2 m is 2 J. The potential difference across A and B is _____.

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21. A charge of 5 C is given a displacement of 0.5m. The work done in the process is 10 J. The potential difference between the two points will be _____.

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22. An electron of charge 'e' coulomb passes through a potential difference of V volts. Its energy in 'joules' will be

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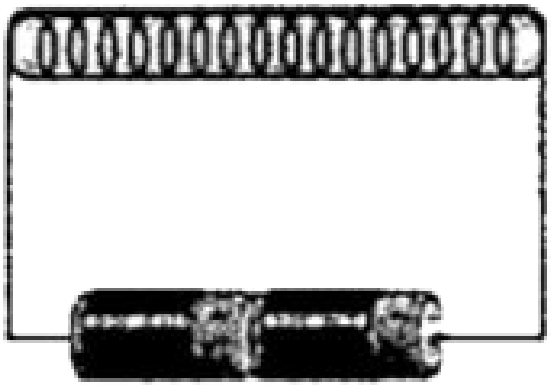
23. To construct an electromagnet, Morgan uses an iron bar as the core and uses four electrical coils, made of four different materials to construct a solenoid. This is represented in the given figure.



The iron bar will not be converted into an electromagnet if the solenoid is made of a

A. Copper wire

B. Aluminum wire

C. Silver wire

D. Plastic wire

Answer:

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24. A light bulb is an incandescent source of light. A light bulb emits light

A. By magnetic induction

B. By the burning of a fuel

C. Because of high temperature

D. Because of the passage of electricity through a gas

Answer:

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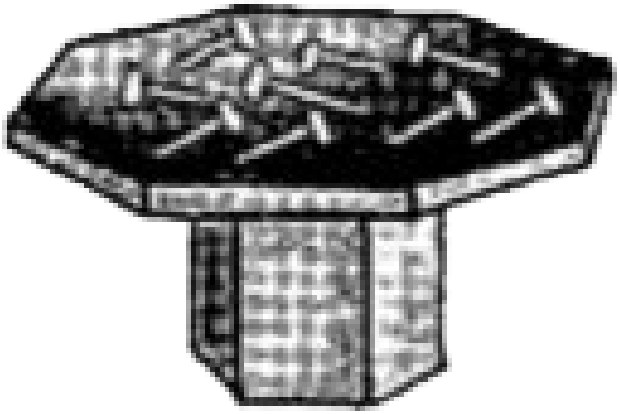
25. Joseph wants to pick the iron nails kept on a table.



Which of the following devices should Joseph use to pick the iron nails?

A. A generator

B. An electric motor

C. An electromagnet

D. A magnetic compass

Answer:

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26. Thomas brings four different devices near a current carrying wire.

Which device will show a deflection?

A. The compass

B. The ammeter

C. The voltmeter

D. The barometer

Answer:

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27. Which of the following actions will produce a magnetic field?

A. Rubbing cotton on a glass rod

B. Passing current through a wire

C. Rubbing two iron bars together

D. Charging a conducting sphere

Answer:

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28. An electromagnet is not used in the functioning of which of the following devices?

A. An electric motor

B. A generator

C. A telescope

D. A door bell

Answer:

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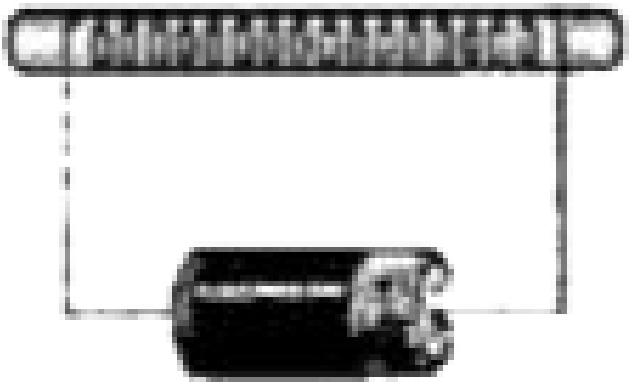
29. Adam has an electromagnet in his school's electrical laboratory



Which of the following materials can be used to make the rod of an electromagnet?

A. Glass

B. Wood

C. Iron

D. Plastic

Answer:

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30. The hair dryer works on the principle of $\underline{i}$ effect of current. The component of the hair dryer that works on this principle is called $\underline{ii}$.

The information in which alternative completes the given statements?

A. $\begin{array}{ll} i & ii \\ \text{heating} & \text{plate} \end{array}$

B. $\begin{array}{ll} i & ii \\ \text{magnetic} & \text{plate} \end{array}$

C. $\begin{array}{ll} i & ii \\ \text{magnetic} & \text{element} \end{array}$

D. $\begin{array}{ll} i & ii \\ \text{heating} & \text{element} \end{array}$

Answer:

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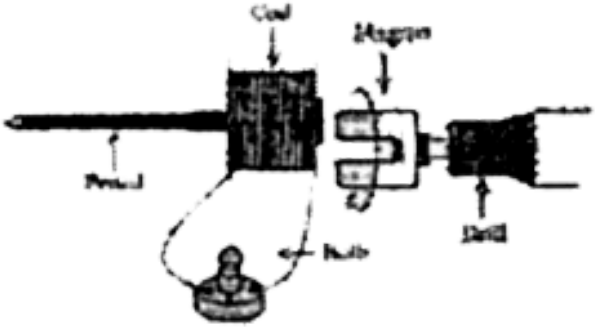
31. Tempenny constructs a simple electric generator as shown in the figure.



The part of the electric generator which is an electromagnet is the

A. Drill

B. Coil

C. Pencil

D. Bulb

Answer:

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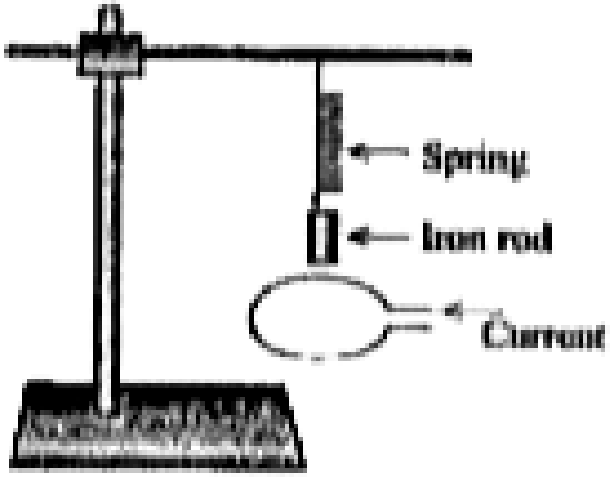
32.



When current flows through the coil, the iron rod is attracted downward because the

A. Current through the coil produces a gravitational field

B. Current through the coil produces a magnetic field

C. Iron rod and the coil carry opposite charges

D. Iron rod and the coil carry like charges

Answer:

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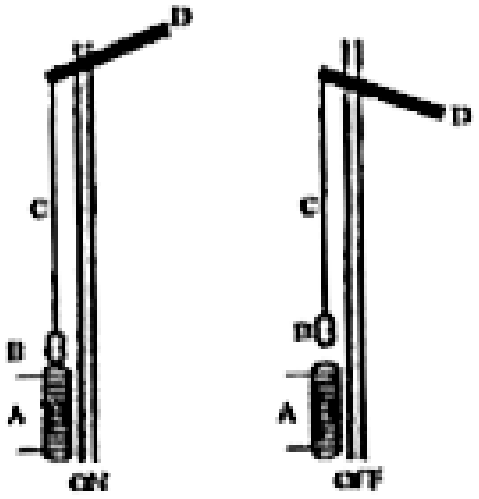
33. The figure shows an electromagnetic train signal. When it is switched on, the signal remains in the upward position, whereas when it is switched off, the signal remains in the downward position as shown in the figure.



Which part of the electromagnetic train signal is the electromagnet?

A. A

B. B

C. C

D. D

Answer:

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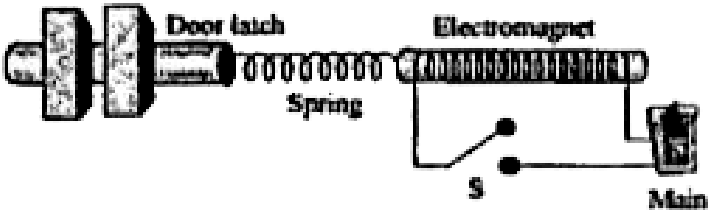
34. Steve constructs an automatic door latch as shown in the figure. When the switch is closed, the electromagnet attracts the door latch

toward itself and the door can be opened. When the switch is opened again, the door latch comes back to its original position using the spring attached between the core of the electromagnet and the door latch.



Steve can improve the structure of the automatic door latch by

A. Using a wooden or plastic door latch

B. Increasing the number of turns in the electromagnet

C. Using glass rod as the core of the electromagnet

D. Increasing the distance between the door knob and the electromagnet

Answer:

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35. Clarke constructs a device by passing current through a piece of long insulated wire wrapped around an iron core. He uses this device for picking paper clips.

What is the name of the device constructed by Clarke?

A. Electric generator

B. Magnetic compass

C. Electromagnet

D. Galvanometer

Answer:

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36. An electric iron works on the principle of i effect of electric current. The component of an iron that works on this principle is its ii.

The information in which alternative completes the given statements?

A. $\begin{matrix} i & ii \\ \text{chemical} & \text{base} \end{matrix}$

B. $\begin{matrix} i & ii \\ \text{heating} & \text{element} \end{matrix}$

C. $\begin{matrix} i & ii \\ \text{heating} & \text{base} \end{matrix}$

D. $\begin{matrix} i & ii \\ \text{chemical} & \text{element} \end{matrix}$

Answer:

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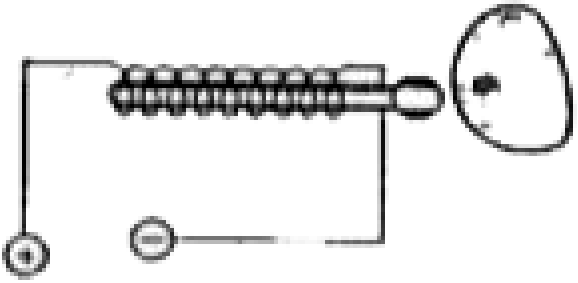
37. A doorbell can be constructed by using a coil, a steel gong, and a hammer.



When current is passed through the coil, the hammer strikes the gong because it becomes

A. Heavy

B. Charged

C. Magnetized

D. Hot

Answer:

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38. The presence of a magnetic field created by an electromagnet can be detected by a

A. Bulb

B. Compass

C. Coil

D. Battery

Answer:

 Watch Video Solution

39. How many poles does an electromagnet have?

A. One

B. Two

C. Three

D. Four

Answer:

Watch Video Solution

40. When current is passed through a wire wound around an iron rod, it produces

A. A gravitational field

B. An electric field

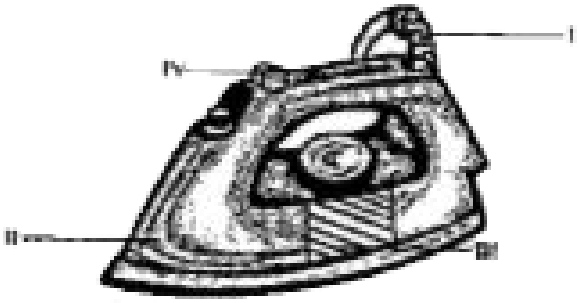
C. A magnetic field

D. A nuclear field

Answer:

Watch Video Solution

41. Four parts of an electric iron are labelled as I, II, III, and IV (as shown in the given figure).



The element of the given electric iron is labelled as

A. I

B. II

C. III

D. IV

Answer:

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42. The element of a heater is

A. Attributed to produce light

B. A coil of low-melting-point wire

C. A coil of high-melting point wire

D. Attributed to generate electricity

Answer:

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43. An electric fuse of 3 A rating is connected in a branch circuit. Suddenly, a current of amount 4 A flows through the circuit that consists of a bulb. Which of the following events could be a possibility in the given circuit?

A. The bulb will get fused

B. The fuse will melt and break the circuit

C. The fuse will absorb 1 A current and will pass 3 A current only

D. The bulb will continue to work normally getting a 4 A current

Answer:

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44. An electric fuse works on the :

A. Safety devices

B. Heating devices

C. Switching devices

D. Controlling devices

Answer:

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45. Which of the following devices works on the principle of heating effect of current?

A. Switch

B. Battery

C. Electric fuse

D. Socket board indicator

Answer:

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46. While reading about the heating effect of current, Raju list some electrical devices that work on that principle. He lists some devices . His father notices that one device is listed incorrectly. Electrical device:

Electric kettle, Motor, Toaster, Geyser, Hair dryer

Which device is listed incorrectly by Raju ?

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47. If a current of 3 A flows through a wire of resistance 8 ohms, calculate the potential difference applied across its ends.

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48. What would be the resistance of a conductor if the current flow through it is 0.35 A when the potential difference across is 1.4 V?

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49. How much current will an electric bulb draw from a 220 V source, if the resistance of the bulb filament is 1200Ω?

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50. How much current will an electric heater coil draw from a 220 V source, if the resistance of the heater is 100Ω ?

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51. The potential difference between the terminals of an electric heater is 60 V when it draws a current of 4 A from the source. What current will the heater draw if the potential difference is increased to 120 V?

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52. 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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53. 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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54. 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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55. Which of the following materials is a good conductor of electricity?

A. Plastic

B. Cork

C. Soil

D. Iron

Answer:

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56. The handle of every repairing tool is covered by a certain insulating material so that the user may not get an electric shock. Which of the following materials cannot be used to cover the handle

A. Tin

B. Glass

C. Wood

D. Rubber

Answer:

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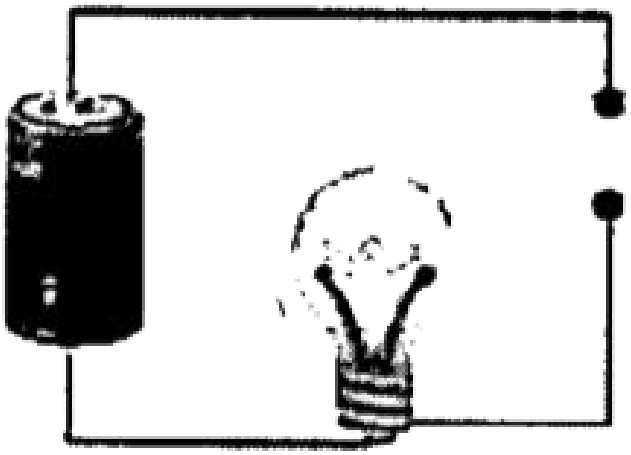
57. Mason constructs the circuit shown in the figure. He leaves a gap in the circuit to test the conductivity of various materials.



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:

Watch Video Solution

58. Which of the following objects is an insulator?

A. Iron rod

B. Plastic cup

C. Nickel coin

D. Steel spoon

Answer: B

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59. Martin is constructing an electrical circuit. He notices that all electrical metal wires are covered

with plastic. Electrical metal wires are covered with plastic because plastics are good

A. Electrical conductors

B. Electrical insulators

C. Heat generators

D. Heat absorbers

Answer: B

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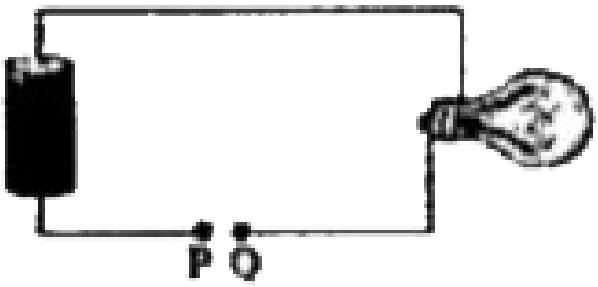
60. Tommy sets up an electrical circuit as shown in the figure. He connects points P and Q with different materials.



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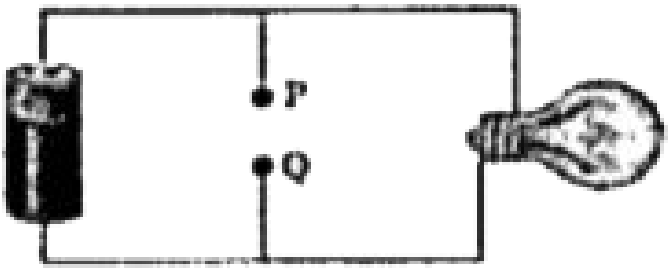
61. Brad sets up an electrical circuit as shown in the given figure. He connects points P and Q of the circuit with four different rods made of four different materials - glass, wood, copper, and asbestos.



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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62. Ronald wants to make electrical wires with a wire drawing machine. He considers using steel, copper, aluminum, and plastic as raw material. The material that Ronald cannot use to make electrical wires is

A. Steel

B. Copper

C. Plastic

D. Aluminum

Answer:

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63. Margaret notices that there are ceramic pulley-like structures attached to the overhead electrical lines near her house. Electrical wires pass over the pulleys. These pulleys are used as electrical

A. Insulators

B. Generators

C. Conductors

D. Transformers

Answer:

Watch Video Solution

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

A. Wood

B. Rubber

C. Plastic

D. Graphite

Answer:

Watch Video Solution

65. 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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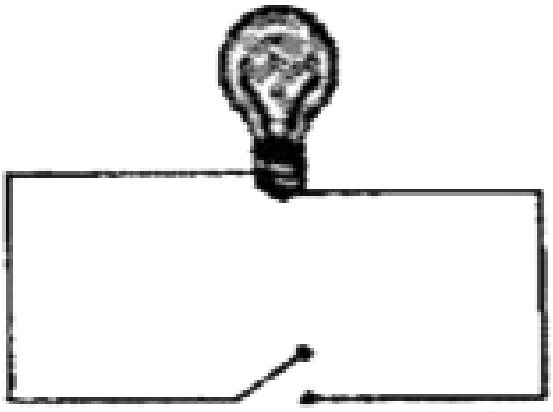
66. The given figure shows a simple circuit consisting of a bulb and a switch.



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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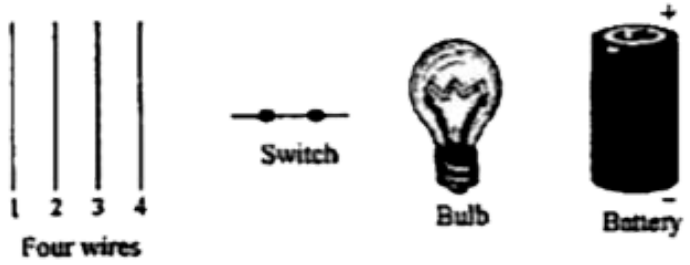
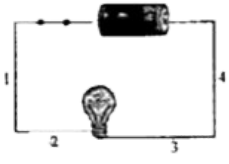
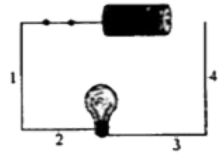
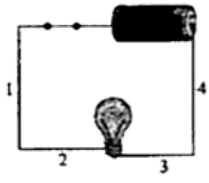
67. The given figures shows four wires , a switch , a bulb and a battery.

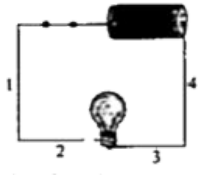


The bulb will glow when the given components are connected as

A. 

B. 

C. 

D. 

Answer:

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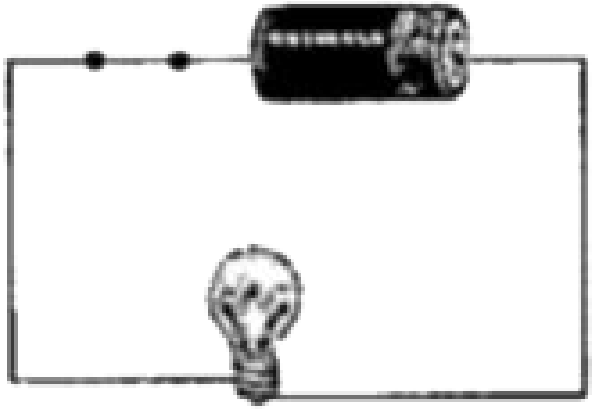
68. The given figure shows a simple circuit involving a battery, a switch, and a bulb.



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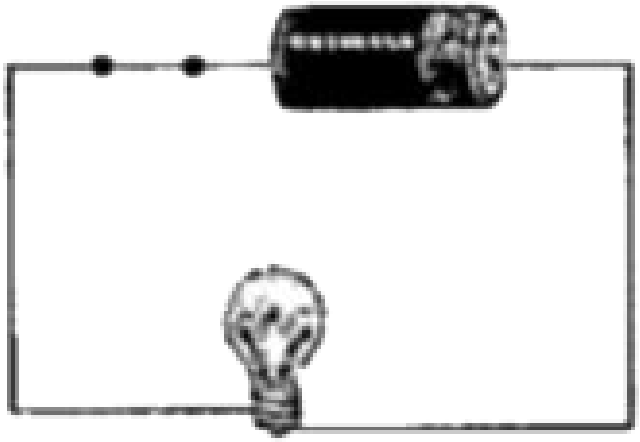
69. A simple electrical circuit containing two bulbs and a battery is shown in the given figure.



If bulb 1 fuses on closing the switch, then bulb 2 will

A. Keep glowing

B. Stop glowing

C. Glow brightly

D. Glow dimly

Answer:

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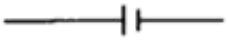
70. The symbol for a fuse is

A. 

B. 

C. 

D. 

Answer:

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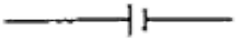
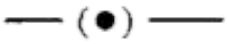
71. The symbol for a ammeter is

A. 

B. 

C. 

D. 

Answer:

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72. 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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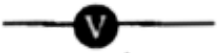
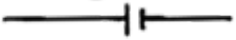
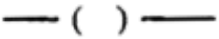
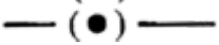
73.

Column-I	Column-II
a) Cell	1) 
b) Resistance	2) 
c) Closed switch	3) 
d) Voltmeter	4) 
	5) 

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74. 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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75. When electric cells are connected in series the electromotive force

A. Increase

B. Decreases

C. Remain same

D. Become zero

Answer:

76. 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 to pass through them are called conductors

D. The materials which allow the electric current to pass through them are called

non conductors

Answer:

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77. 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:

Watch Video Solution

78. 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 unit of charge is coulomb in SI system and esu of charge (or stat coul) in C.G.S. system 1 coulomb equals

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2. A body can be negatively charged

(giving electrons to it, removing some electrons from it, giving some protons to it, removing some neutrons from it.)

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3. _____is the amount of charge flowing through a particular area of cross section of a conductor

in unit time

(Charge, Electric current, Potential, Energy)

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4. The SI unit of electric current is

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5. One ampere is equal to

$(1C/s, 1C \times 1s, 1J \times 1C, 1J/C)$

Watch Video Solution

6. Volt is the SI unit of

(potential difference, current, resistance, charge)

Watch Video Solution

7. No current flows between two charged bodies when connected, if they have same

(capacity, potential, charge, none)

Watch Video Solution

8. The surface of the earth is taken to be at (infinite potential, negative potential, positive potential, zero potential)

Watch Video Solution

9. Which is bigger, a coulomb or charge on an electron ? How many electronic charges from one coulomb of charge ?

Watch Video Solution

10. How many electrons are equal to 1 coulomb?

$(6.25 \times 10^{16}, 6.25 \times 10^{17}, 6.25 \times 10^{18}, 6.25 \times 10^{19})$

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11. _____between two points in an electric circuit carrying some current as the work done to move a unit charge from one point to the other.

(electric current, electric charge, potential difference, electric power)

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12. The SI unit of potential difference

(ohm, volt, ampere, coulomb)

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13. What is the work done in moving a charge of Q coulomb against a potential difference of V volt?

$(Q/V, QV, Q+V, Q-V)$

Watch Video Solution

14. What is the instrument used to measure potential difference across a circuit.

(Ammeter, voltameter, galvanometer, all)

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15. The device used for measuring current is

(Galvanometer, Ammeter, Voltmeter, Potentiometer)

Watch Video Solution

16. The needle of a magnetic compass gets deflected when placed near a current carrying wire because the current carrying wire produces

A. A gravitational field

B. A magnetic field

C. An electric field

D. A nuclear field

Answer:

Watch Video Solution

17. Consider the following statements about an electric bell:

I. An electric bell works on the principle of magnetic effect of current

II. An electric bell consists of an electromagnet

III. An electric bell produces sound continuously

Among the given statements,

A. Only I is correct

B. Only III is correct

C. Both I and II are correct

D. Both II and III are correct

Answer:

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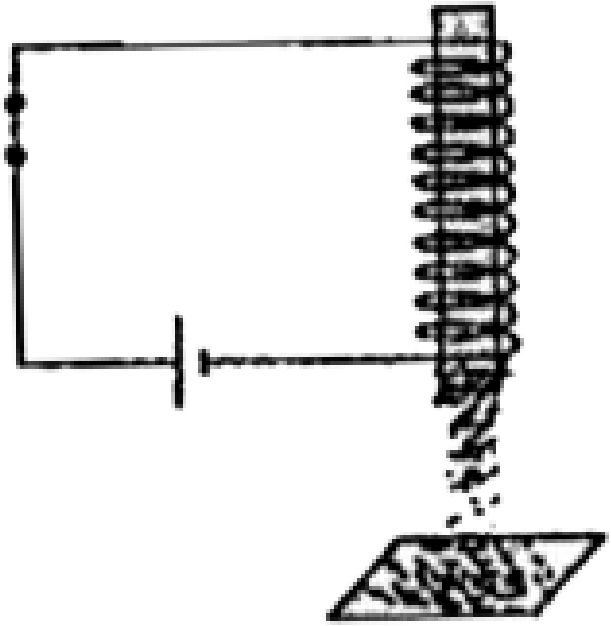
18. The given figure shows a simple electric circuit that consists of a coil of wire wounded around an iron rod. Some iron filings are placed near one end of the rod. When the switch is closed, some iron filings get attracted towards the rod.



The iron filings will get attracted towards the iron rod

A. For a very long time

B. As long as the current flows through the coil

C. Until the polarity of the battery is not changed

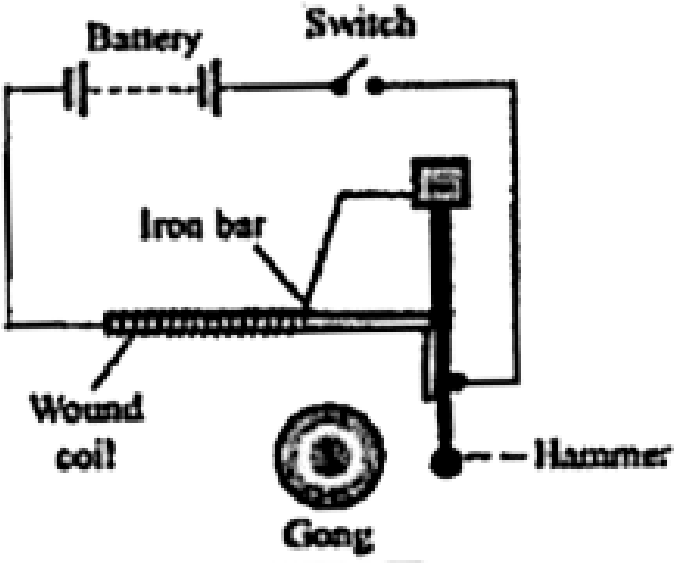
D. Until the sheet containing the iron filings is not removed

Answer:

Watch Video Solution

19. The internal construction of an electric bell is shown in the given figure. The switch is in OFF position. When it is switched ON, one part of the

bell moves.



The part that moves when the switch is closed is the

A. Gong

B. Hammer

C. Iron bar

D. Wound coil

Answer:

Watch Video Solution

20. The principle of magnetic effect of current is incorporated in the working of an electric

A. Geyser

B. Toaster

C. Door bell

D. Hair dryer

Answer:

Watch Video Solution

21. When current is allowed to flow through a coil of wire, the coil

Watch Video Solution

22. 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

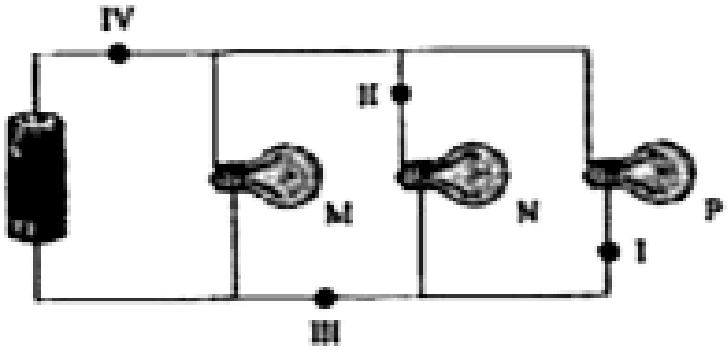
C. Wood

D. Rubber

Answer:

Watch Video Solution

23. 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 this switch at point

A. I

B. II

C. III

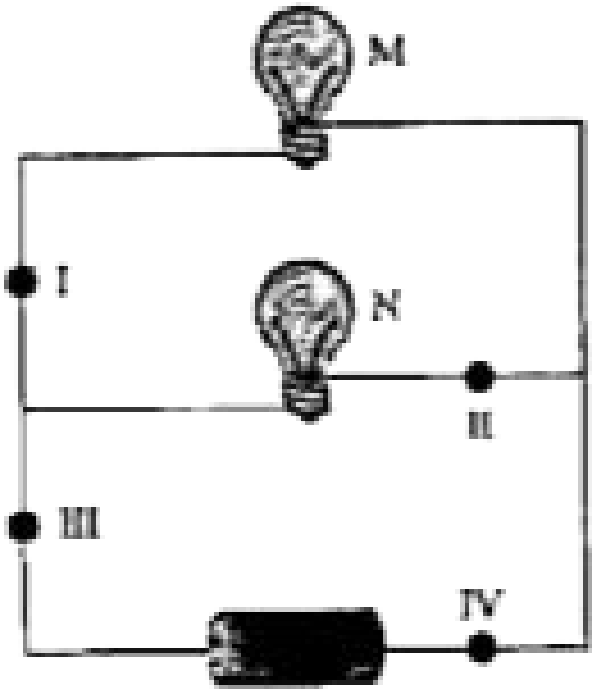
D. IV

Answer:

Watch Video Solution

24. 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

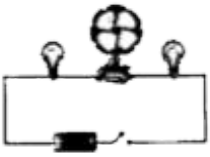
Answer:

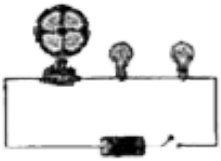
Watch Video Solution

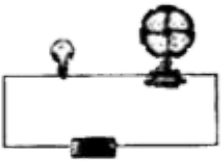
25. The given figure shows two bulbs, a switch, a battery, and a fan. Using all the components, David makes a simple electrical circuit putting a bulb on either sides of the fan.

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

A. 

B. 

C. 

D. 

Answer:

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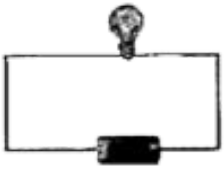
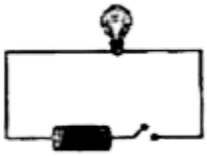
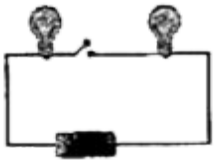
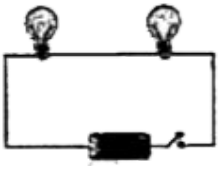
26. The given figure shows two bulbs, a switch, and a battery. Martha makes a simple circuit using all the given components. The circuit is such that a bulb is placed on either sides of the switch.

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

A. 

B. 

C. 

D. 

Answer:

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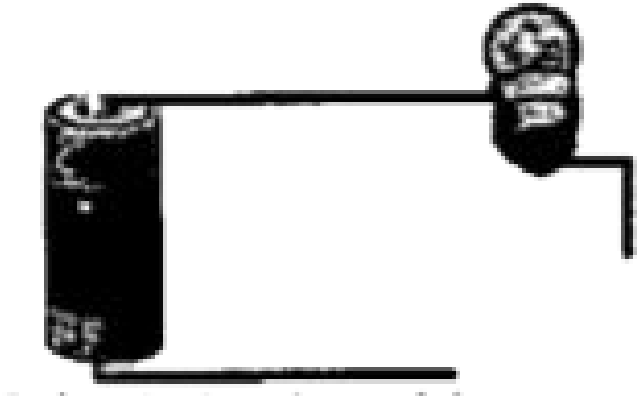
27. An electric circuit made by a student is incomplete because one of the wires is too short

to connect with the other wire as shown in the given figure. In order to glow the bulb, he has to connect the open ends by inserting an object between them.



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

A. Nail

B. Bottle

C. Glass sheet

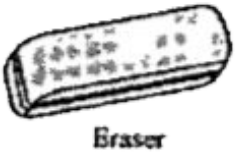
D. Rubber band

Answer:

Watch Video Solution

28. Which of the following objects can conduct electricity?

A. 

B. 

C. 

D. 

Answer:

Watch Video Solution

29. An electric cell has $\underline{i}$ terminal(s). The metal cap of an electric cell represents its $\underline{ii}$ terminal. The information in which alternative completes the given statement?

A. i two ii negative

B. i two ii positive

C. i one ii negative

D. i one ii positive

Answer:

Watch Video Solution

30. The path along which electric current flow is called

A. Electric circuit

B. Electric shock

C. Both (A) and (B)

D. Neither (A) nor (B)

Answer:

Watch Video Solution

31. Statement I : Switch is used to close are open electric circuit .

Statement II : When switch is closed, then circuit is closed and when it 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 -

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

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

Answer:

Watch Video Solution

Summative Worksheet

1. Electric current flows in _____direction only.

Watch Video Solution

2. A cell has two terminals, one terminal is on the metal base, second terminal is on _____.

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3. Fill in the blanks .

A device that is used to break an electric circuit is called_____ .

Watch Video Solution

4. An electric cell has _____ terminals.

Watch Video Solution

5. UNIT OF ELECTRIC CURRENT

Watch Video Solution

6. 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:

Watch Video Solution

7.

(i) Button Cells	(a) Torch light, Clocks
(ii) Dry Cells	(b) Wrist watches, Calculators
(iii) Accumulators	(c) In Cars, Trucks
	(d) Space Satellites

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

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

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

D. i-a, ii - b, iii - a

Answer:

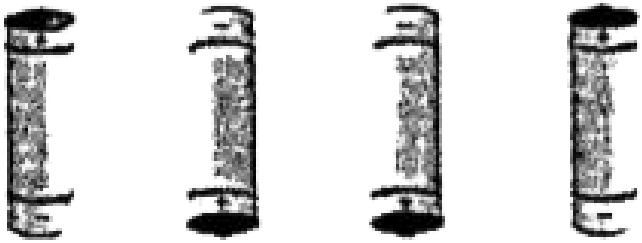
Watch Video Solution

8. Draw in your notebook the symbols to represent the following components of electrical circuits: connecting wires, switch in the 'OFF'

position, bulb, cell, switch in the 'ON' position, and battery.

Watch Video Solution

9. Figure shows four cells fixed on a board. Draw lines to indicate how you will connect their terminals with wires to make a battery of four cells.



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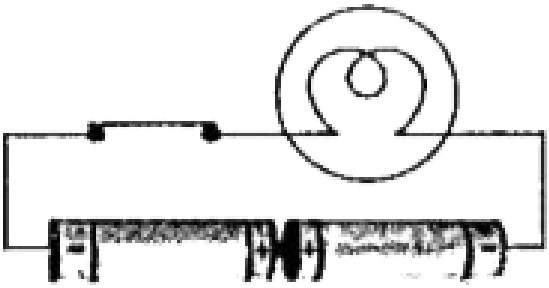
10. The bulb in the circuit shown in Figure does not glow. Can you identify the problem? Make necessary changes in the circuit to make the bulb glow.



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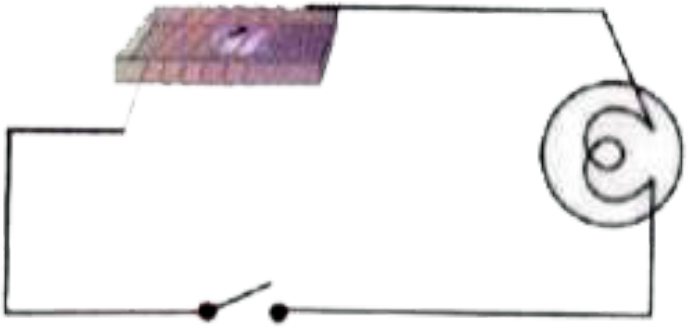
11. When the current is switched on through a wire, a compass needle kept nearby gets deflected from its north-south position. Explain.

Watch Video Solution

12. Will the compass needle show deflection when the switch in the circuit shown by figure is

closed?



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13. Fill in the blanks:

Longer line in the symbol for cell represents _____terminal.

Watch Video Solution

14. Fill in the blanks:

The combination of two or more cells is called a

_____.

Watch Video Solution

15. Fill in the blanks:

When current is switched 'on' in a room heater, it

_____

Watch Video Solution

16. Fill in the blanks:

The safety device based on the heating effect of electric current is called a _____

Watch Video Solution

17. Mark 'T' if the statement is true and 'F' if it is false:

To make a battery of two cells, the negative terminal of one cell is connected to the negative terminal of the other cell. (T/F)

Watch Video Solution

18. Mark 'T' if the statement is true and 'F' if it is false:

When the electric current through the fuse exceeds a certain limit, the fuse wire melts and breaks. (T/F)

Watch Video Solution

19. Mark 'T' if the statement is true and 'F' if it is false:

An electromagnet does not attract a piece of iron. (T/F)

Watch Video Solution

20. Mark ‘T' if the statement is true and 'F' if it is false:

An electric bell has an electromagnet. (T/F)

Watch Video Solution

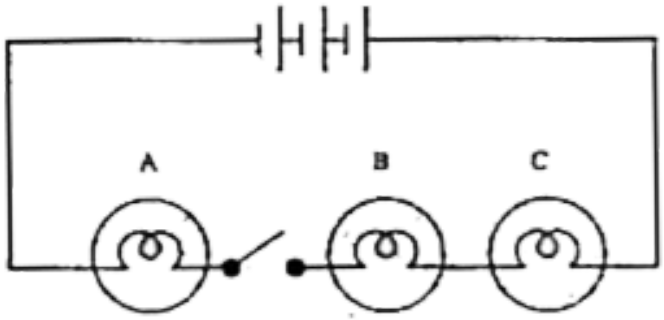
21. Do you think an electromagnet can be used for separating plastic bags from a garbage heap? Explain.

Watch Video Solution

22. An electrician is carrying out some repairs in your house. He wants to replace a fuse by a piece of wire. Would you agree? Give reasons for your response.

Watch Video Solution

23. In the circuit shown in figure



(i) Would any of the bulbs glow when the switch is in the 'OFF' position?

(ii) What will be the order in which the bulbs A, B and C will glow when the switch is moved to the 'ON' position?

Watch Video Solution

Hots Worksheet

1. It is impossible to construct a torch in the absence of

A. Plastic casing

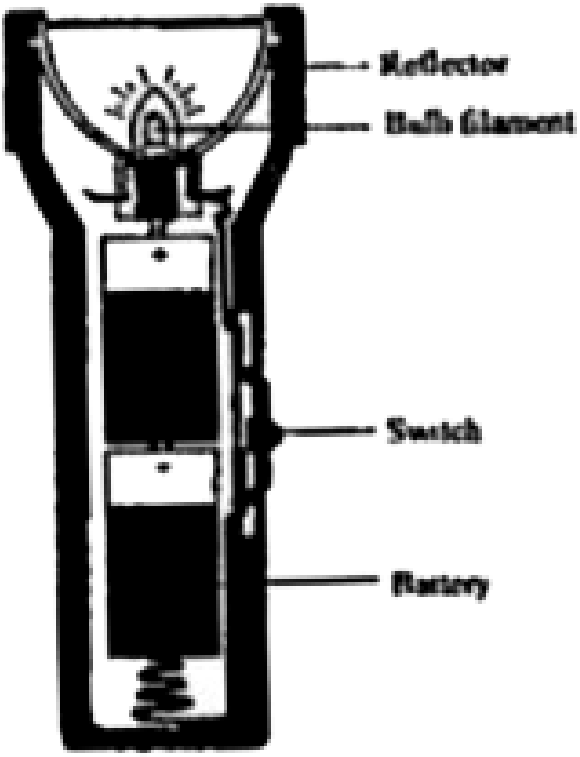
B. Electric cells

C. Reflector

D. Switch

Answer:

Watch Video Solution

2. 

Among the labelled parts, current does not flow through the

A. Battery

B. Switch

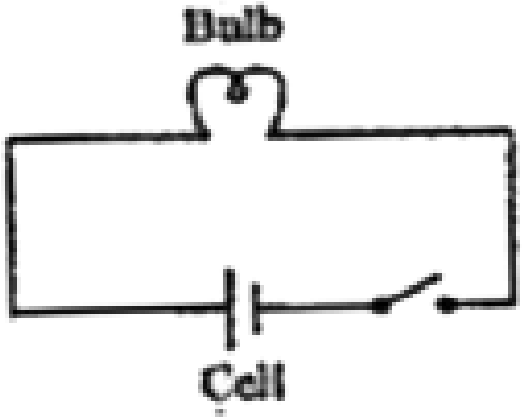
C. Filament

D. Reflector

Answer:

Watch Video Solution

3. 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

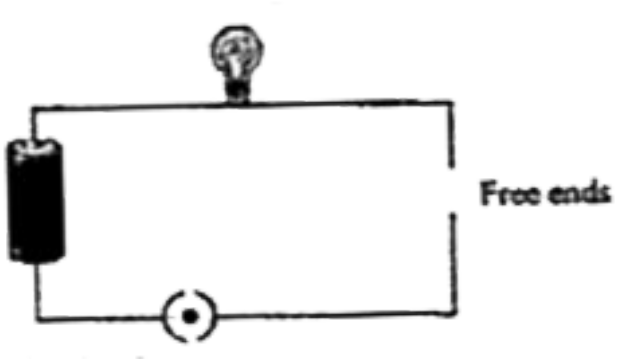
C. Connecting wires produce electricity

D. Circuit completes on closing the switch

Answer:

Watch Video Solution

4. Suraj has constructed 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

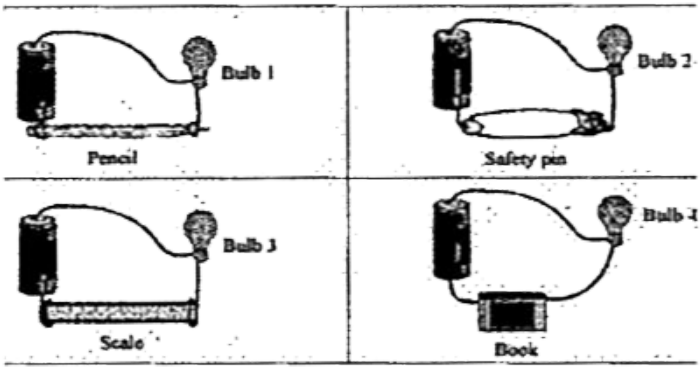
C. Pen cap

D. Wooden

Answer:

Watch Video Solution

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

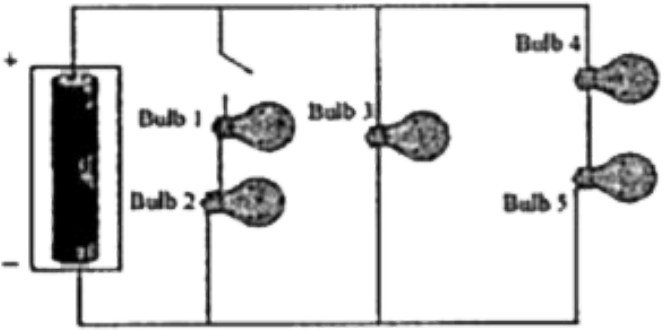
C. Bulb 3

D. Bulb 4

Answer:

Watch Video Solution

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

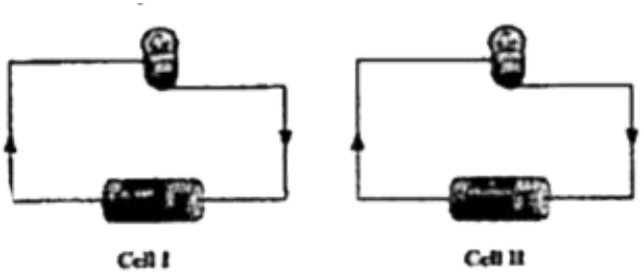
C. Bulb 3 and Bulb 4

D. Bulb 4 and Bulb 5

Answer:

Watch Video Solution

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



Terminals M and T of the cells are

A. Both positive

B. Both negative

C. Positive and negative respectively

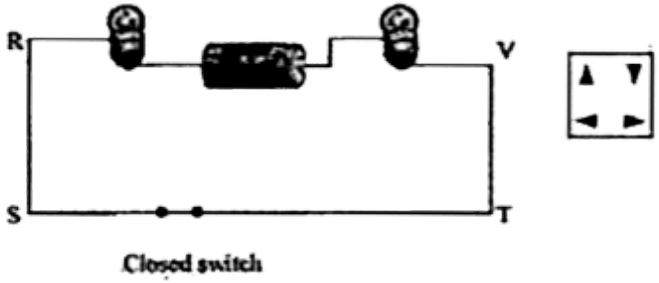
D. Negative and positive respectively

Answer:

Watch Video Solution

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.



Closed switch

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:

Watch Video Solution

9. Various parts on the outer surface of an electric cell 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.

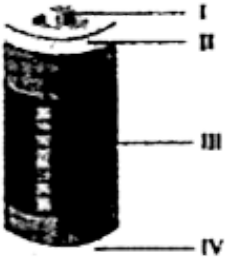


Figure (a)

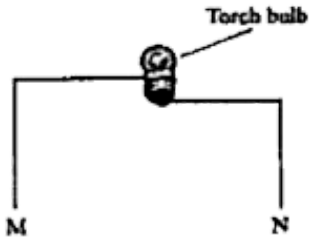


Figure (b)

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:

Watch Video Solution

10. Which of the following parts 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.

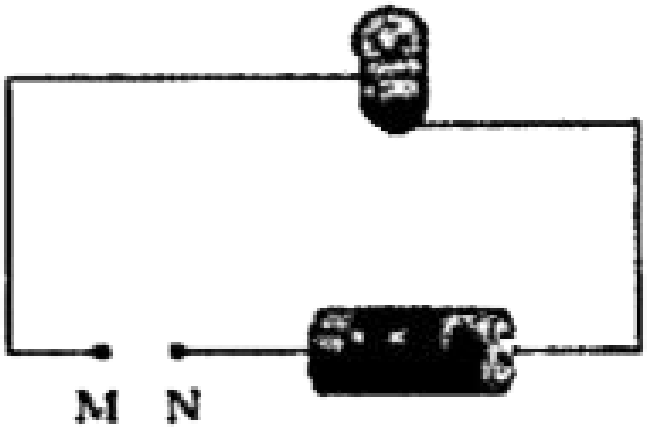
Part of a torch	Function
Cell	Provides energy

Answer:

Watch Video Solution

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.

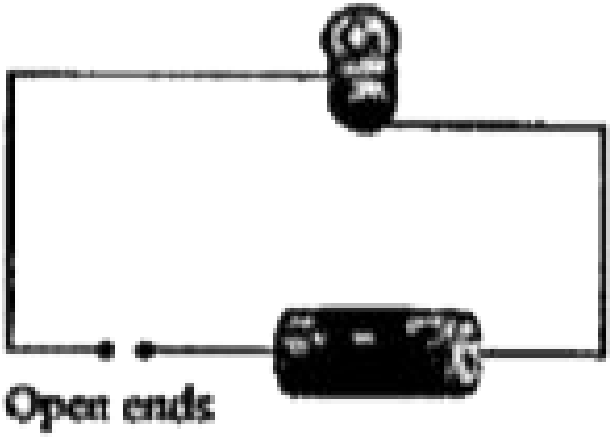
C. Bottle cap and thermocol sheet respectively

D. Eraser, scale, bangle, and bottle cap respectively

Answer:

Watch Video Solution

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



Opa ends Which of the following objects is

inserted tightly in the gap to make the bulb glow?

A. Key

B. Cork

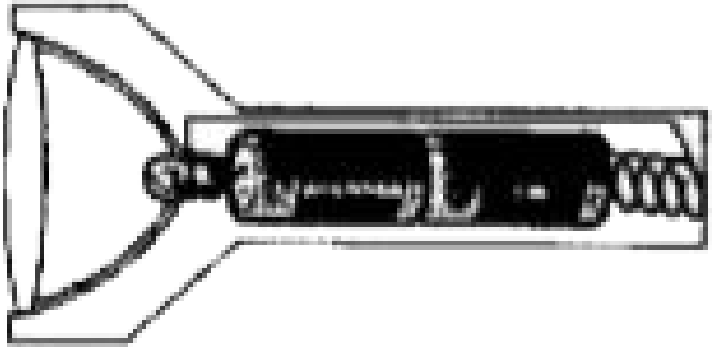
C. Plastic bottle cap

D. Thermocol sheet

Answer:

Watch Video Solution

13. The picture of a household torch is shown is the given figure.



The electricity required to operate a simple torch is provided by the

A. Bulb

B. Electric cell

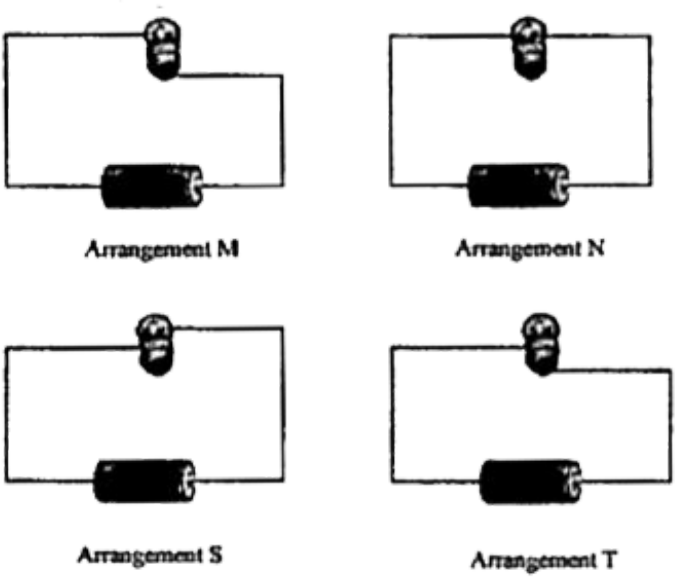
C. Switch

D. Curved mirror

Answer:

Watch Video Solution

14. Different arrangements of an electric bulb with an electric cell are shown in the given figure. The arrangements are labelled as M, N, S, and T respectively.



The bulb will glow in

A. Arrangement N only

B. Arrangement T only

C. Both arrangements M and N

D. Both arrangements S and T

Answer:

Watch Video Solution

Iit Jee Worksheet I Single Correct Answer Type

1. The metallic wires used for connections in an electric circuit is called.

A. Leads

B. Cells

C. Batteries

D. Insulators

Answer:

Watch Video Solution

2. Most handy source of electricity which is used in torch lights are.

A. Dry Cells

B. Button Cells

C. Batteries

D. None

Answer:

Watch Video Solution

3. In wrist watches _____ are used.

A. Dry Cell

B. Button Cell

C. Battery

D. None

Answer:

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4. Metals are _____ of electricity.

A. Conductors

B. Non Conductors

C. Both

D. None

Answer:

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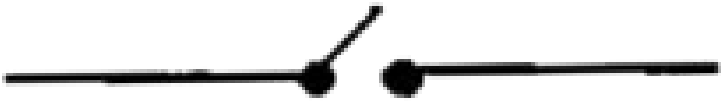
5. 

represents.

A. Electric Switch

B. Battery

C. Cell

D. Fuse

Answer:

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6. Electricity name was given by _____.

A. Thales

B. Gilbert

C. Newton

D. Coulomb

Answer:

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7. A combination of two or more cells is called a _____.

A. Battery

B. Accumulators

C. Button Cells

D. None

Answer:

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8. ___is a non-metal but is a Conductors of electricity

A. Graphite

B. Glass

C. Mercury

D. Water

Answer:

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9. 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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10. An electric cell converts _____energy into electrical energy.

A. Chemical

B. Mechanical

C. Wind

D. Light

Answer:

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11. 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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12. Which of the following is an insulator?

A. Pure Water

B. Impure Water

C. Human Body

D. Earth

Answer:

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13. 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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14. There are two types of charges, they are_____and _____s.

A. Positive & Neutral

B. Negative & Neutral

C. Positive & Negative

D. None

Answer:

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15. S.I unit of Charge is

A. Ampere

B. Volt

C. Newton

D. Coulomb

Answer:

16. 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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17. Over head electric cables passing through poles are NOT insulated because.

A. Insulation will cause energy loss

B. Air is a bad conductor

C. The wires will get heated

D. It is costly

Answer:

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18. 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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19. 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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Iit Jee Worksheet Ii Multiple Correct Answer Type

1. Which of the following are insulators?

A. Glass

B. Plastic

C. Wood

D. Silver

Answer:

Watch Video Solution

Iit Jee Worksheet Iii Paragraph Type

1. The rate of flow of charge in a circuit is called electric current. In other words, it is the amount of charge flowing per second. It is denoted by the letter

I. If Q is the charge which is flowing through a conductor in time t, then current is given by $i = \frac{Q}{t}$

Unit of current:

The S.I unit of current is ampere and it is denoted by the letter 'A'.

The S.I unit of Q is coulomb and that oft is

second. Thus, the S.I unit of electric current is

$$\frac{1 \text{ coulomb}}{1 \text{ second}} = 1A$$

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. The rate of flow of charge in a circuit is called electric current. In other words, it is the amount of charge flowing per second. It is denoted by the letter

I. If Q is the charge which is flowing through a

conductor in time t, then current is given by

$$i = \frac{Q}{t}$$

Unit of current:

The S.I unit of current is ampere and it is denoted by the letter 'A'.

The S.I unit of Q is coulomb and that oft is second. Thus, the S.I unit of electric current is

$$\frac{1\text{coulomb}}{1\text{ second}} = 1A$$

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

Watch Video Solution

3. The rate of flow of charge in a circuit is called electric current. In other words, it is the amount of charge flowing per second. It is denoted by the letter

I. If Q is the charge which is flowing through a conductor in time t, then current is given by

$$i = \frac{Q}{t}$$

Unit of current:

The S.I unit of current is ampere and it is denoted by the letter 'A'.

The S.I unit of Q is coulomb and that oft is second. Thus, the S.I unit of electric current is

$$\frac{1 \text{ coulomb}}{1 \text{ second}} = 1A$$

How much time is required for 10 coulombs of charge to flow past a point if the rate of flow (current) is 2 amperes?

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Iit 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 sec, the average current is _____A.

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Iit Jee Worksheet V Matrix Matching

1.

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

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

2.

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(A) A path along which electric current flows	(p) Switch
(B) A device which converts chemical energy into	(q) Electric circuit electric energy
(C) A device which makes or breaks the circuit	(r) Cell
	(s) Electric current

3.

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