



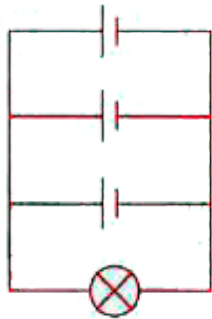
PHYSICS

BOOKS - HT Olympiad Previous Year Paper

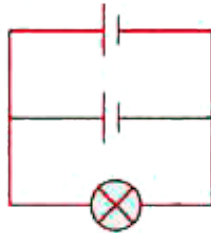
ELECTRICITY AND CIRCUITS

Multiple Choice Questions

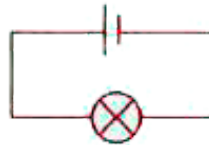
1. Study the circuits given here.



Bulb P



Bulb Q



Bulb R

Which of the following are correct statements about the bulbs in the circuits shown above if all the bulbs and cells are identical ?

- I. Bulb R is the brightest.
- II. Initially, all the bulbs will have the same brightness.
- III. All the bulbs will light up for the same

period of time.

IV. Bulb P will light up for a longer period of time than bulb Q and bulb R.

A. I and III

B. II and III

C. I and IV

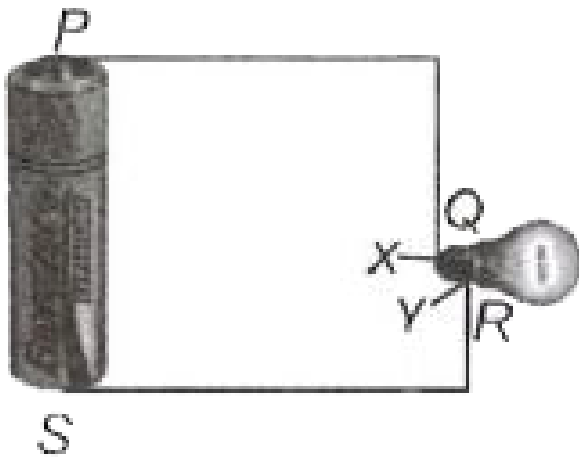
D. II and IV

Answer: D



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2. Look at the given figure. It consists of a cell, a bulb with the two terminals X and Y and wires with ends P and Q, and S and R. The direction of current will be:



A. PQRS

B. SRQP

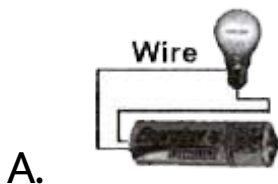
C. PRQS

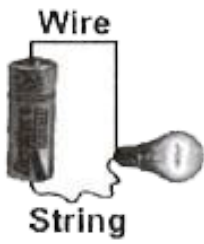
D. SQRP

Answer: A

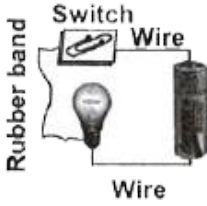
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3. In which of the following circuits will the bulb glow ?

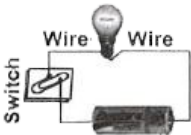




B.



C.



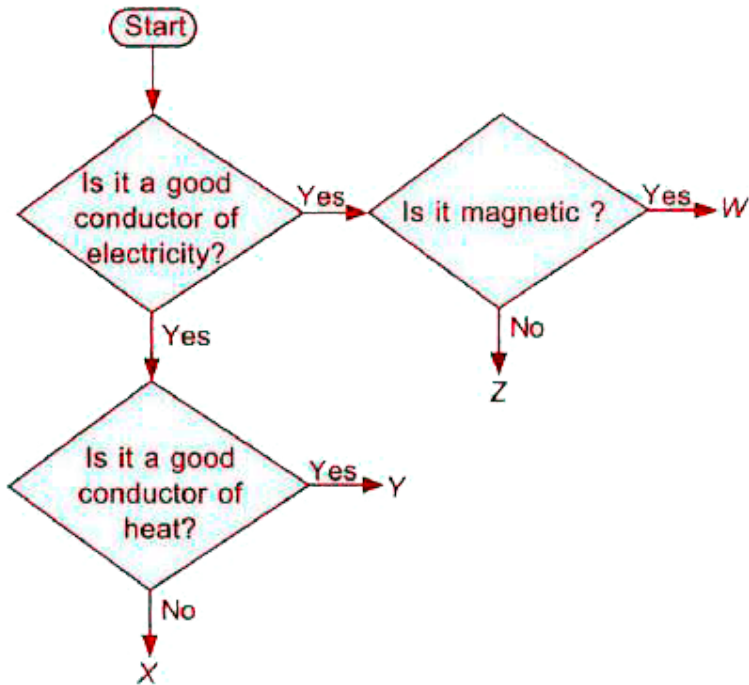
D.

Answer: D



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4. Study the given flow chart:



Which one of the following items represent Z ?

A. Clay spoon

B. Copper wire

C. Steel spoon

D. Iron rod

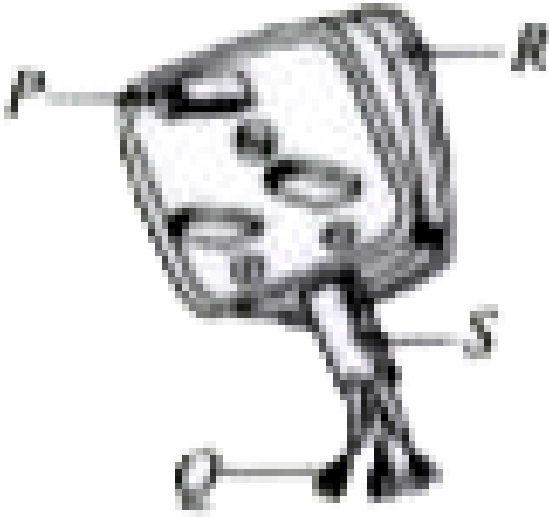
Answer: B



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5. To protect the user , part (s) _____ of the plug as shown in the figure must be made of

electrical insulators .



A. P only

B. R only

C. R and S only

D. Q and S only

Answer: C



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6. There is a mistake in the given classification table.

Non-conductor of electricity	Conductor of electricity
Wool	Copper
Cotton	Brass
Plastic	Iron
Cork	Steel
Graphite	Silver

Which of the following is placed incorrectly in the groups ?

A. Wool

B. Graphite

C. Iron

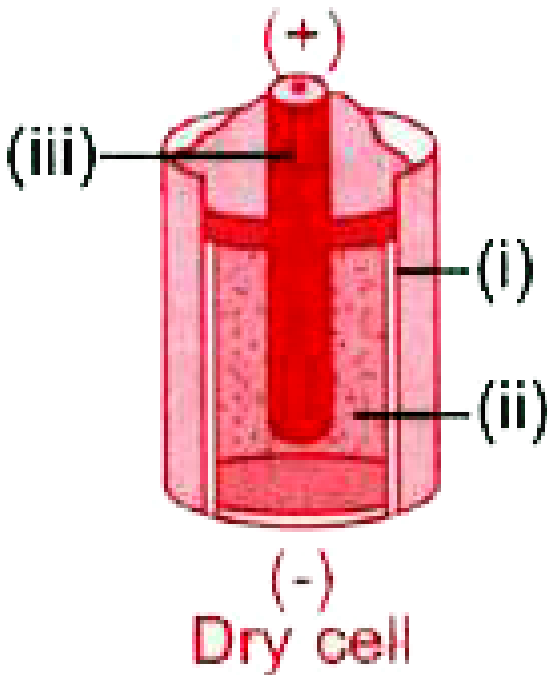
D. Silver

Answer: B



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7. Label the dry cell in the correct order.



A. (i) Carbon and Manganese dioxide mixture, (ii) Carbon rod, (iii) Ammonium chloride

B. (i) Zinc container, (ii) Ammonium chloride, (iii) Zinc rod

C. (i) Ammonium chloride, (ii) Zinc container, (iii) Carbon rod

D. (i) Zinc container, (ii) Carbon and Manganese dioxide mixture, (iii) Carbon rod

Answer: D



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8. What is the function of the component shown here ?

A. It is used to determine measure voltage of the cell.

B. It provides the energy for the bulb to glow.

C. It can break a circuit by interrupting the current or diverting it from one conductor to another.

D. It measures the current in a circuit.

Answer: C



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9. Which of the following statements are correct ?

(i) Human body is a good conductor of electricity.

(ii) The air gap surrounding an electric circuit acts as a conductor.

(iii) Silver conducts electricity better than any other metal.

(iv) When electricity lights up a bulb, no heat is produced.

A. (i) and (ii)

B. (iii) and (iv)

C. (i) and (iii)

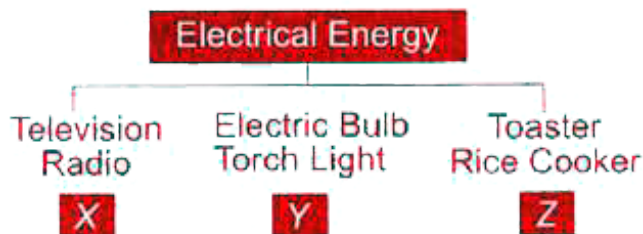
D. (ii) and (iii)

Answer: C



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10. Study the classification carefully and select the correct option for X, Y and Z.



A. X- Refrigerator, Y- Clock, Z- Microwave

B. X-Music system, Y-Washing machine, Z- Heater

C. A-Walkman, B-Table lamp, C-Electric kettle

D. A-Air conditioner, B-Heater, C- Hair dryer

Answer: C

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11. "Do not handle electric wires with your bare hands. Wear rubber gloves," said Mr. Gupta. Which of the following statements is not true about what Mr. Gupta commented ?



A. You will get electrocuted if you handle live wires.

B. The rubber glove is a good insulator to protect us from electric shocks.

C. The rubber gloves control the electric current flow.

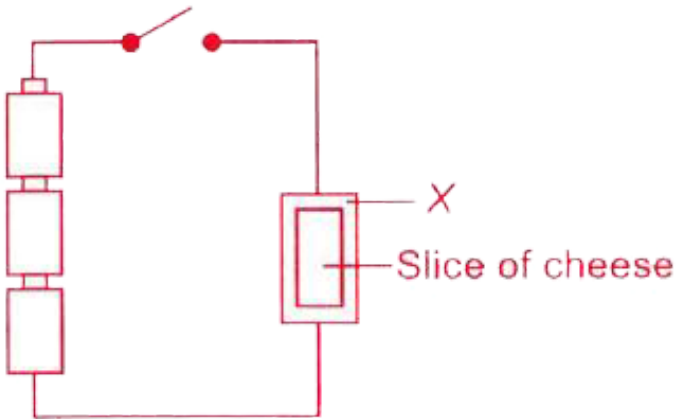
D. Electricity cannot flow through rubber.

Answer: C



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12. In the given diagram, the cheese starts to melt when the switch is turned on.



What can X be ?

I. Silver, II. Wood

III. Plastic, IV. Copper

A. I and IV

B. I, II and III

C. II and III

D. All the these

Answer: A



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13. The most important safety method used for protecting home appliances from short-circuiting or overloading is:

A. Short circuiting and overloading

B. Overloading and earthing

C. Earthing only

D. Short circuiting, overloading and earthing.

Answer: A

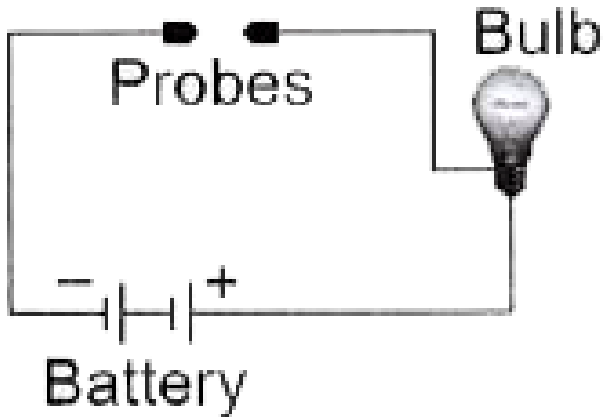


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14. Observe the given figure and answer the following questions.

The bulb will glow when a _____ is placed in

between the probes.



A. Crayon

B. Comb

C. Metal Key

D. Piece of stone

Answer: C



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15. Which of the following statements is correct regarding the maximum brightness of the bulb used in the circuit ?

A. A similar battery is connected between the probes in same order.

B. A similar battery is connected between the probes in reverse order.

C. A similar bulb is connected between the probes.

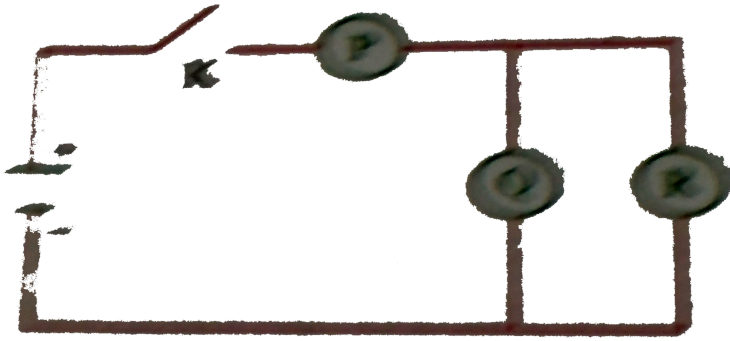
D. None of these

Answer: A



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Achievers Section Hots



Three identical bulbs P, Q and R are connected to a battery as shown in the figure. When the circuit is closed.

A. R will glow bright but Q and P will be dim.

B. P, Q and R all will glow equally bright

C. Q and R will immediately burnout.

D. P will glow bright, but Q and R will be dim

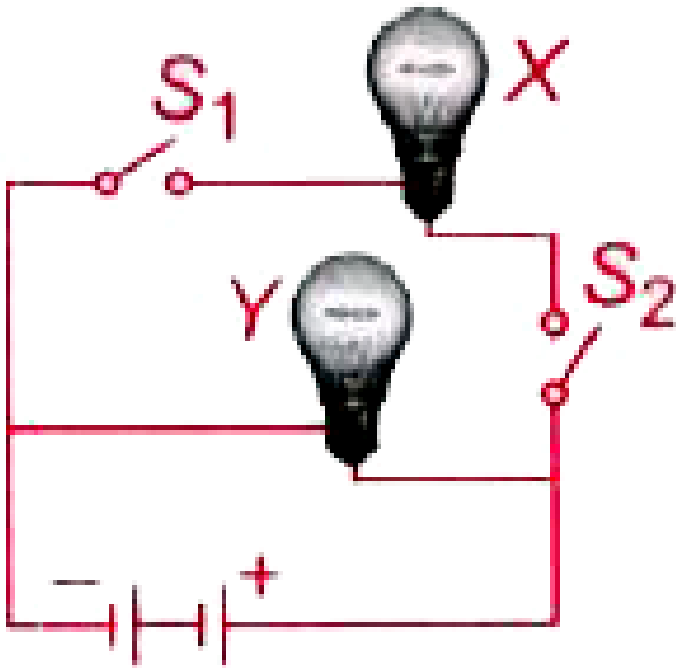
Answer: D



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2. In the given diagram, two switches S_1 and S_2 and two bulbs X and Y are connected as shown. If switch S_1 is closed and switch S_2 is

open then



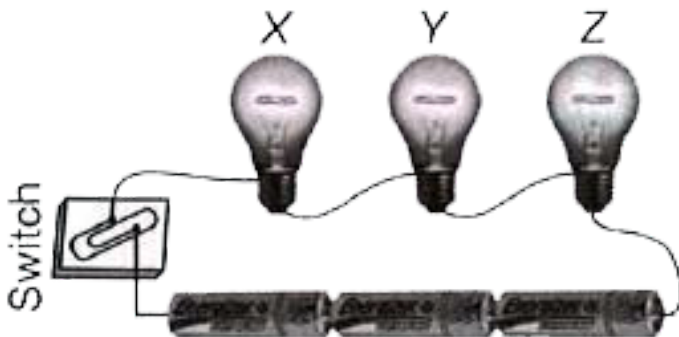
- A. Only bulb X will glow
- B. Only bulb Y will glow
- C. Both bulbs X and Y will glow
- D. Neither bulb X nor bulb Y will glow.

Answer: B



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3. Ravi connected three bulbs with the cells and a switch as shown. When switch is moved to ON position.



A. The bulb X will glow first

B. The bulb Y will glow first

C. The bulbs Z and X will glow first

D. All the bulbs will glow simultaneously.

Answer: D



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4. Manu connected three bulbs to a cell as shown in figure. She found that filament of bulb Q is broken. Which of the following

statements is correct ?



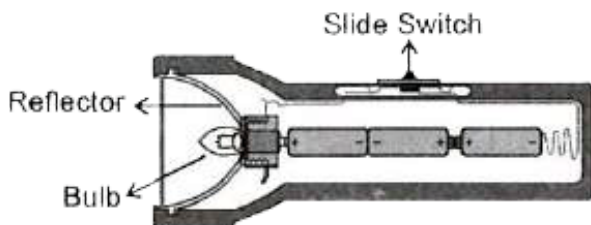
- A. Only bulb R will glow
- B. Only bulb P will glow.
- C. Both bulbs P and R will glow.
- D. None of the bulbs will glow.

Answer: D



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5. Given diagram shows the lateral section of a torch containing cells. The torch is not glowing when the switch is ON. Which of the following statements may be correct regarding the reasons ?



Bulb of the torch is fused.

Cells are not connected properly.

The metal parts of the torch do not make proper contact with the cell.

- A. Only (i) and (ii)
- B. Only (ii) and (iii)
- C. Only (i) and (iii)
- D. All (i), (ii) and (iii)

Answer: D



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