


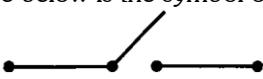


Electric Current and Its Effects**Exercise – 1****Multiple Choice Questions**

DIRECTIONS: The following questions have four choices (a), (b), (c) and (d) out of which only one is correct. You have to choose the correct alternative.



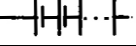

1. Which of the following is a symbol of switch for "off" position in an electric circuit?
(a)  (b) 
(c)  (d) None of these
2. A battery consists of
(a) only one cell (b) only two cells
(c) two or more cells (d) All of the above
3. Select the one in which heating effect of current is not used.
(a) Electric iron
(b) Electric immersion heater
(c) Electric geyser
(d) A battery
4. When an electric current is flowing through a conductor it
(a) Experiences a force when it is in a magnetic field
(b) Experience no force when it is in a magnetic field
(c) Experiences the force only if the field is of electromagnetic nature
(d) All of the above
5. The magnetic field around a current-carrying coil lasts
(a) for a few hours
(b) a few minutes
(c) for ever
(d) for the duration for which current flows through it
6. When electric current flows through a conductor, the conductor becomes
(a) liquid (b) vapor
(c) hot (d) cold
7. By whom was magnetic effect of current discovered?
(a) Faraday (b) Fleming
(c) Oersted (d) None of these
8. A fuse is fixed in a circuit in order to
(a) decrease the amount of current
(b) increase the amount of current
(c) increase the power consumed in the circuit
(d) safeguard against excessive current.
9. Select the one that you will prefer to make an electromagnet.
(a) Steel (b) Plastic
(c) Stainless steel (d) Soft iron
10. Tungsten is used for the manufacture of an electric bulb because
(a) it is malleable (b) it is inexpensive
(c) it has a very high melting point
(d) it is a good conductor
11. In an electric motor, conversion takes place of
(a) chemical energy into electrical energy
(b) electrical energy into mechanical energy
(c) electrical energy into light
(d) electrical energy into chemical energy
12. Key or switch in circuit is placed:
(a) left side of the battery
(b) right side of the battery
(c) any where in the circuit
(d) near the positive terminal of the bulb
13. In which circuit will the bulb or bulbs glow the brightest?
(a) A simple circuit with one bulb and one cell
(b) A simple circuit with one bulb and two cells
(c) A simple circuit with two bulbs and one cell
(d) A simple circuit with two bulbs and two cells
14. Which of the following instruments is used to check whether electricity is flowing through a substance or not?
(a) Voltmeter (b) Ammeter
(c) Tester (d) Cell
15. Why are symbols used for electric components?
(a) It makes it easier to draw the circuit diagrams
(b) It is essential to draw the circuit diagrams
(c) It helps to show the direction of flow of current in a circuit
(d) All of the above
16. The acting contacts for circuit breakers are made of
(a) Stainless steel

- (b) Hard pressed carbon
(c) Porcelain
(d) Copper tungsten alloy
17. The primary cell which is used in daily life is
(a) Leclanche cell (b) Dry cell
(c) Daniel cell (d) Simple voltaic cell
18. Electric current is measured by a device called
(a) Voltmeter (b) ammeter
(c) Electroscop (d) none of these
19. When electricity is passed through a coil
(a) Magnetic field is produced
(b) Heat is developed in the coil
(c) Energy is lost in the form of heat
(d) All the above
20. Study of relationship between electricity and magnetism is called
(a) Current electricity
(b) Electric magnetism
(c) Magneto electricity
(d) Electromagnetism
21. What is the material for electric fuse?
(a) Cu (b) Constantan
(c) Tin-lead alloy (d) Nichrome
22. The figure below is the symbol of:

 (a) closed plug key (b) cell
 (c) variable resistance (d) open plug key
23. A house-owner replaces a failed fuse for the lights of the house. When the lights are switched on, the second fuse also fails. The house-owner then uses a third fuse with a higher rating than the previous two.
Why is this **not** a sensible thing to do?
 (a) Fuses only allow the circuit to work if the rating is exactly right.
 (b) The third fuse will melt because the rating is too high.
 (c) Using a fuse with too high rating causes electric shocks.
 (d) The circuit may work, but the fault is not corrected.
24. To make a battery of two cells
(a) the negative terminal of one cell is connected to the negative terminal of the other cell
 (b) the negative terminal of one cell is connected to the positive terminal of the other cell
 (c) the positive terminal of one cell is connected to the positive terminal of the other cell
 (d) None of these
25. It is present in an electric bulb and glows when electric current is switched on. It is
(a) a bulb (b) a filament
(c) an element (d) a coil
26. It is a current carrying coil of an insulated wire wrapped around a piece of iron. It is called
(a) Electric heater (b) Electromagnet
(c) Element (d) Filament
27. Fuse
(a) is a safety device which prevents damage to electric circuits and possible fire.
(b) is made up of an insulating material to avoid electric shocks.
(c) is a device which is used to measure the flow of electric current through a circuit.
(d) All of the above
28. Element refers to
(a) the coil of wire used in various electrical appliances based on heating effect of current
(b) the coil of wire used in various electrical appliances based on magnetic effect of current
(c) both the above
(d) None of these
29. Why does a bulb not glow when its filament is broken?
(a) the bulb is showing the heating effect but it does not glow.
(b) the circuit is broken
(c) both the above
(d) None of these
30. Which mark is necessary on electrical appliances?
(a) ISI
(b) HCCI
(c) AGMARK
(d) KSK

Match the Column

DIRECTIONS: Match Column-I with Column-II and select the correct answer using the codes given below the columns.

31.

Column-I	Column-II
(a) Electric cell	(p) 
(b) Electric bulb	(q) 
(c) Battery	(r) 
(d) Switch	(s) 

- (a) (a) → (p), (B) → (q), (C) → (r), (D) → (s)
 (b) (a) → (q), (B) → (p), (C) → (r), (D) → (s)
 (c) (a) → (p), (B) → (q), (C) → (s), (D) → (r)
 (d) (a) → (q), (B) → (p), (C) → (s), (D) → (r)

32.

Column-I	Column-II
(a) CFL	(p) A safety device to prevent electric appliances
(b) ISI	(q) The wire used in heater to get heat
(c) Switch	(r) Consume less energy than bulb
(d) Fuse	(s) Appliance is safe to use
(e) Element	(t) Turns the circuit ON or OFF

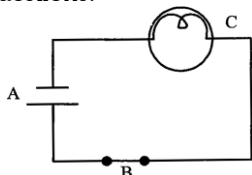
- (a) (a) → (s), (B) → (t), (C) → (r), (D) → (q), (E) → (p)
 (b) (a) → (r), (B) → (s), (C) → (t), (D) → (p), (E) → (q)
 (c) (a) → (q), (B) → (r), (C) → (p), (D) → (s), (E) → (t)
 (d) (a) → (t), (B) → (p), (C) → (s), (D) → (q), (E) → (r)

Passage Based Question

DIRECTIONS: Read the passage given below and answer the questions that follow.

Passage-1

Some common electrical components can be represented by symbols. It is much easier to draw a circuit diagram using symbols. A circuit diagram of an electrical circuit is shown in the figure below. Look at the diagram and answer the questions.



33. In the diagram, B represents
 (a) a connecting wire
 (b) a switch in 'ON' position
 (c) a switch in 'off' position
 (d) None of these

34. Which part of the circuit diagram represents a bulb?

- (a) A (b) B
 (c) C (d) None of these

35. The longer horizontal line in A represents which terminal of the cell?

- (a) Positive terminal
 (b) Negative terminal
 (c) Either positive or negative terminal
 (d) None of these

Passage-2

We use various appliances based on heating effect of current in our daily life. Some such appliances are electric room heater, electric heater, hot plates, electric iron, hair dryers etc. All these contain a coil of wire called element.

36. The coil of wire in an electric bulb is known as

- (a) Element (b) filament
 (c) Conducting wire (d) none of these

37. Which part of an electric iron becomes hot and gives out heat?

- (a) the switch
 (b) the handle
 (c) the element
 (d) the connecting wire

38. The amount of heat produced depends upon which of the following?

- (a) Material of element (b) Length of wire
 (c) Thickness of wire (d) all of these

Assertion/Reason Based Questions

DIRECTIONS: The questions in this segment consist of two statements, one labeled as "Assertion A" and the other labeled as "Reason R". You are to examine these two statements carefully and decide if the Assertion A and Reason R are individually true and if so, whether the reason is a correct explanation of the assertion. Select your answers to these items using codes given below.

- (a) Both A and R is true and R is the correct explanation of A.
 (b) Both A and R is true but R is not the correct explanation of A.
 (c) A is true but R is false.
 (d) A is false but R is true.

39. **Assertion (A):** Fuse is a safety device which prevents damages to electrical circuits and possible fires.

Reason (R): The fuse wire blows off and breaks the circuit and prevents fire and damage.

40. **Reason (A):** Steel core is used in an electromagnet.

Reason (R): Steel gets permanently magnetized when the current flows through the coil wound around.

Statement Based Questions

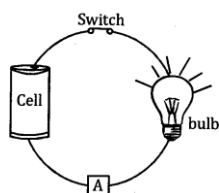
DIRECTIONS: Read the following two statements carefully and choose the correct options.

- (a) Statement (1) is correct while statement (2) is incorrect.
 (b) Statement (2) is correct while statement (1) is incorrect.
 (c) Both statements are correct
 (d) Both statements are incorrect.
41. **Statement 1:** Battery is a combination of two cells only.
Statement 2: The positive and negative terminals are generally marked on the cells.
42. **Statement 1:** The heating up of a thin conducting wire on passing an electric current through it is known as heating effect of current.
Statement 2: Various electrical appliances that are based on heating effect of current contain a coil of wire called element.

Figure Based Questions

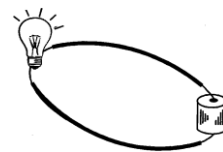
DIRECTIONS: On the basis of, -following diagram/picture answer the questions given below:

43. Ritu has set up a circuit as shown. What should she put in the position A to make the bulb glow more brightly?



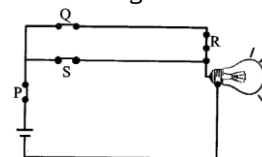
- (a) Bulb
 (b) wire
 (c) Key
 (d) cell

44. What energy changes take place in the figure given here, where a bulb glows with the help of a cell?



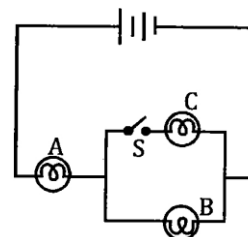
- (a) Electrical → light
 (b) Electrical → heat → light
 (c) Chemical → electrical → heat → light
 (d) Chemical → electrical → light → heat

45. Study the circuit shown here. Which switch if opened will cause the light bulb to stop glowing?



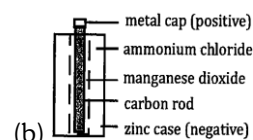
- (a) P
 (b) Q
 (c) R
 (d) S

46. In the figure given below, A, B and C are identical bulbs. What changes occur in the brightness of bulbs A and B when the switch S is closed?



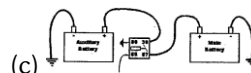
- (a) Brightness of A increases but that of B decreases
 (b) Brightness of A remains the same but that of B decreases
 (c) Brightness of both A and B decreases
 (d) Brightness of both A and B increases

47. Which one is not a source of electric current?



(a)

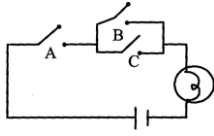
(b)



- (c) A
 (c) C

- (d) B
 (d) D

48. In the circuit diagram shown below, the bulb lights up when



- (a) A is closed. Band Care open
- (b) A and B are closed but C is open
- (c) A, Band Care closed
- (d) Both (b) and (c).

49. The picture below shows a shop that caught fire because of a short circuit.



Which of the following could have resulted in the fire?

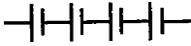

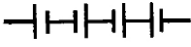

- (a) the shopkeeper used fuses and circuit breakers.
 - (b) the shopkeeper bought an energy-saving appliance.
 - (c) The shopkeeper did not replace his frayed and damaged wires.
 - (d) The shopkeeper plugged too many appliances into one socket.
- (a) D only (b) A and B only
- (c) C and D only (d) B, C and D only

Exercise-2

Multiple Choice Questions

DIRECTIONS: The following question has four choices (a), (b), (c) and (d) out of which only one is correct. You have to choose the correct alternative.

1. Select the one that is a necessary requirement for a wire to be used as a fuse wire
 - (a) a conductor having a low melting point
 - (b) a conductor having a high melting point
 - (c) an insulator having a low melting point
 - (d) an insulator having a high melting point
2. There is a coil of wire in an electrical iron. This coil of wire is known as
 - (a) component
 - (b) circuit
 - (c) element
 - (d) spring
3. When we switch on an electric bell
 - (a) the flow of electric current through the electromagnet in the bell stops.
 - (b) the current-starts to flow through the electromagnet
 - (c) there occurs a decrease in the voltage of the current flowing through the electromagnet
 - (d) None of the above
4. The amount of heat produced in a conductor when electric current flows through it depends on which of the following?
 - (a) Material of the wire
 - (b) Length of the wire
 - (c) Thickness of the wire
 - (d) All of these
5. Fuses of
 - (a) Same kind are used for different purposes
 - (b) different kind are used for different purposes
 - (c) Both the above are correct
 - (d) None of these
6. If you bring a magnetic compass near a conducting wire through which current is flowing, what will you observe?
 - (a) It loses magnetism
 - (b) It deflects the magnetic needle
 - (c) No effect on the compass
 - (d) The magnetic needle faces in East-west direction
7. One should not connect a number of electric appliances to the same power socket because
 - (a) The appliances will not get full voltage
 - (b) The appliances will not get proper current
 - (c) This can damage the appliances
 - (d) This can damage the dome sting wiring due to overheating
8. Which of the following actions will decrease the strength of the magnetic field of an electromagnet?
 - (a) Using fewer loops of wire per meter in the coil
 - (b) Decreasing the current in the wire
 - (c) Removing the iron core
 - (d) All of the above
9. In electric fittings, the wires are earthed because:
 - (a) it avoids leakage of electricity
 - (b) in case of short circuit, current passes to the earth
 - (c) it completes the electric current
 - (d) it reduces fluctuation
10. When the switch of an electric bell is on, then electric current in it
 - (a) flows and stops in succession
 - (b) flows continuously
 - (c) first flows in one direction and after some time in other direction
 - (d) flows in the beginning and then stops Forever
11. Pooja makes a simple circuit with one bulb and five cells. The bulb lights for an instant and then goes out. Why?
 - (a) Electricity could not flow through the circuit
 - (b) Too much electricity passed through the bulb filament
 - (c) The wires melted in the heat
 - (d) All of the above
12. Marking on a bulb is 60 W, 220 V. What does it signify?
 - (a) The bulb is connected across the 220 Volts, 60 Joules of energy is consumed for every second.
 - (b) The bulb is connected across 60 Joules, 220 Volts of energy is consumed
 - (c) 60 Unit of current will flow in the bulb
 - (d) 220 Unit of current will flow in the bulb
13. MCB
 - (a) is a device based on heating effect of current
 - (b) is a device based on magnetic effect of current

- (c) is a switch which automatically turns off when current in it exceeds the safe limit
(d) None of these
- 14.** The fault clearing time of a circuit breaker is usually
(a) Few minutes
(b) Few seconds
(c) One second
(d) Few cycles of supply voltage
- 15.** When current is passed through an electric bulb, its filament glows, but the wire leading current to the bulb does not glow because-
(a) Less current flows in the leading wire as compared to that in the filament
(b) The leading wire has more resistance than the filament
(c) The leading wire has less resistance than the filament.
(d) Filament has coating of fluorescent material over it
- 16.** Which has no importance for fuse wire?
(a) Specific resistance of wire
(b) Diameter of wire
(c) Length of wire
(d) Current passing through the wire
- 17.** If it takes 8 minutes to boil a quantity of water electrically, how long will it take to boil the same quantity of water using the same heating coil but with the current doubled?
(a) 32 minutes
(b) 16 minutes
(c) 4 minutes
(d) 2 minutes
- 18.** When main switch of the house circuit is put off, it disconnects the
(a) live wire
(b) neutral wire
(c) earth wire
(d) live and neutral wires
- 19.** The proper representation of series combination of cells obtaining maximum potential is
(a)  (b) 
(c)  (d) 
- 20.** A small rod is wound round with certain coils and current is allowed to pass for sometime. When the rod was taken out, it was found not to attract iron. The material of the rod may be
(a) Copper
(b) cobalt
(c) Steel
(d) nickel
- 21.** A fuse wire repeatedly gets burnt when used with a good heater. It is advised to use a fuse wire of
(a) More length
(b) less radius
(c) Less length
(d) more radius
- 22.** When the strength of the current flowing through a coil is increased
(a) Strength of the magnetic field decreases
(b) Strength of the magnetic field increases
(c) Amount of heat generated due to resistance decreases
(d) Strength of the magnetic field remains constant
- 23.** A substance that acquires the properties of a natural magnet is called.
(a) Artificial magnet
(b) Synthetic magnet
(c) Manmade magnet
(d) None of these
- 24.** Electromagnet is not used in
(a) Electric bell
(b) Electric fan
(c) Magnetic sticker
(d) Television
- 25.** The electric light switch for a bathroom is sometimes fitted on the wall outside the bathroom.
(a) The heat from the light affects the switch.
(b) The person in the bathroom may be electrocuted if water enters the switch.
(c) The switch is less likely to be damaged outside the bathroom.
(d) The warm air in the bathroom causes the switch to overheat.
- 26.** A light bulb is connected in series with a battery, a switch and some wires. However, the light bulb does not light up. What is/are the possible reason(s)?
(A) The battery is weak.
(B) The switch is closed
(C) The bulb has blown
(D) The wires are made of copper
(a) A only
(b) A and C only
(c) B and D only
(d) B, C and D only
- 27.** Marie conducted an experiment to find out if the number of bulbs arranged in series would affect the brightness of the bulbs. Which of the following variables should be kept the same?
A. type of bulbs
B. Number of wires
C. types of batteries
D. Number of bulbs
(a) D only
(b) B and D only
(c) A, B and C only
(d) A, B, C and D

Match the Column

DIRECTIONS: Match Column-I with Column-II and select the correct answer using the codes given below the columns.

28.

Column-I	Column-II
(a) Battery	(p) The thin wire in an electrical bulb that glows when electrical current passes through it
(b) Filament	(q) Combination of two or more cells
(c) Electric geyser	(r) Makes use of heating effect of current
(d) Electric bell	(s) Electromagnet

- (a) (a) → (p), (B) → (q), (C) → (r), (D) → (s)
 (b) (a) → (p), (B) → (q), (C) → (s), (D) → (r)
 (c) (a) → (q), (B) → (p), (C) → (r), (D) → (s)
 (d) (a) → (q), (B) → (p), (C) → (s), (D) → (r)

29.

Column-I	Column-II
(a) MCB	(p) Filament
(b) Electromagnet	(q) Element
(c) Electric kettle	(r) Electric bell
(d) Electric bulb	(s) Safety device

- (a) (a) → (s), (B) → (r), (C) → (q), (D) → (p)
 (b) (a) → (p), (B) → (q), (C) → (r), (D) → (s)
 (c) (a) → (r), (B) → (q), (C) → (p), (D) → (s)
 (d) (a) → (q), (B) → (s), (C) → (r), (D) → (p)

30.

Column-I	Column-II
(a) The fuse wire is generally an alloy of	(p) the metal of an electrical appliance is earthed
(b) Electric fuse is connected in	(q) the live wire and the neutral wire come in direct contact
(c) To avoid the risk of electric shocks	(r) Lead and tin
(d) A short ® circuit occurs whenever	(s) Series in the beginning of the electric circuit

- (a) (a) → (p), (B) → (q), (C) → (r), (D) → (s)
 (b) (a) → (q), (B) → (p), (C) → (s), (D) → (r)
 (c) (a) → (r), (B) → (s), (C) → (p), (D) → (q)
 (d) (a) → (s), (B) → (r), (C) → (q), (D) → (p)

Passage Based Questions

DIRECTIONS: Read the passage given below and answer the questions that follow.

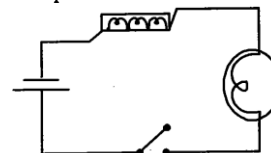
Passage

When an electric current passes through a wire, it behaves like a magnet. This is the magnetic effect of current. When the electric current is switched off, the coil generally loses magnetism. Such coils are called electromagnets.

31. Which of the following make use of electromagnets?

- (a) a crane (b) an electric bell
 (c) Both of these (d) None of these

32. Look at the following diagram and tell if compass needle placed near the connecting wire will show deflection when the switch in the circuit is in 'ON' position?



- (a) It will show deflection
 (b) It will not show deflection
 (c) Sometimes it will show deflection and sometimes it will not show any deflection
 (d) None of the above is correct.

Assertion/Reason Based Questions

DIRECTIONS: The questions in this segment consist of two statements, one labeled as "Assertion A" and the other labeled as "Reason R". You are to examine these two statements carefully and decide if the Assertion A and Reason R are individually true and if so, whether the reason is a correct explanation of the assertion. Select your answers to these items using codes given below.

- (a) Both A and R are true and R is the correct explanation of A.
 (b) Both A and R are true but R is not the correct, explanation of A.
 (c) A is true but R is false.
 (d) A is false but R is true.

33. **Assertion (A):** It is fatal to touch a live wire with bare feet and uncovered hands.

Reason (R): The electric current passes through the body to the earth forming a circuit and burns the blood.

- 34. Assertion (A):** When a battery is short-circuited, the terminal voltage is zero.
Reason (R): In the situation of a short-circuit, the current is zero.

Statement Based Questions

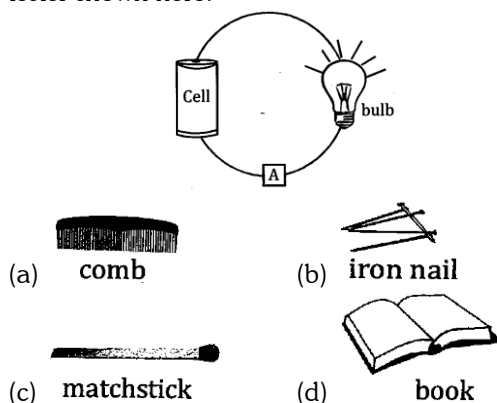
DIRECTIONS: Read the following three statements carefully and choose the correct option.

- (a) Statement (1) and (3) are incorrect while statement (2) is correct.
 (b) Statement (1) and (2) are incorrect while (3) is correct.
 (c) All the statements are correct.
 (d) All the statements are incorrect.
- 35. Statement 1:** The emf of a battery equal the potential difference between its terminals when the terminals are not connected externally.
Statement 2: Terminals potential difference can be greater than emf of cell.
Statement 3: When current is flowing in circuit then terminal voltage is less than emf of cell.

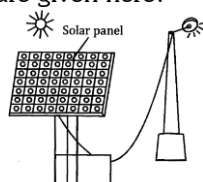
Figure Based Questions

DIRECTIONS: On the basis of following diagram/picture answer the questions given below:

- 36.** Which of the following objects will make the bulb glow when put in position A of the material tester shown here.

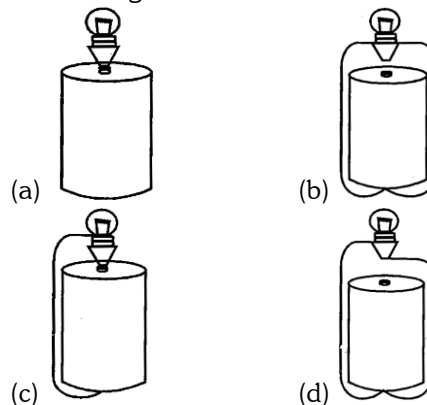


- 37.** Which of the following energy conversions takes place in the figure given here?

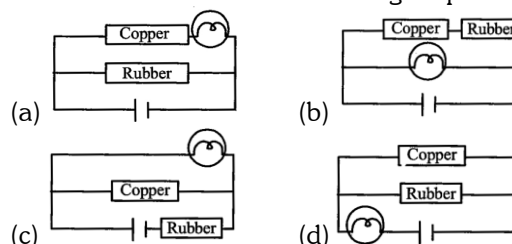


- (a) Solar → electrical
 (b) Solar → light → heat
 (c) Solar → electrical → light
 (d) Solar → electrical → light → heat

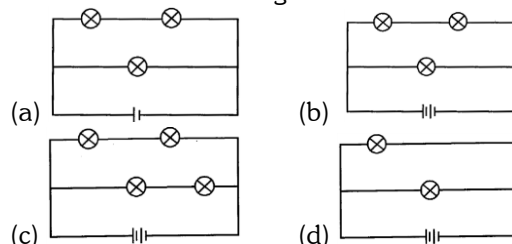
- 38.** Bulb in which of the following arrangements will be able to glow?



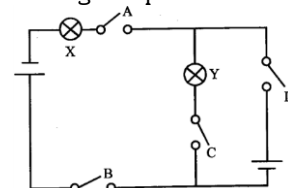
- 39.** In which circuit the bulb will not light up?



- 40.** Shayna used similar bulbs, batteries and wires to set up four circuits as shown below. Which of the circuits will have the brightest bulbs?



- 41.** In the circuit below, which switch should be left open and which switch should be left closed so that only bulb Y lights up?



Switch A	Switch B	Switch C	Switch D
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(a) Closed	Closed	Open	Open
(b) Closed	Open	Open	Closed
(c) Open	Open	Closed	Closed
(d) Open	Closed	Closed	Open

42. Four different circuits are shown below. In which of the above circuits would the bulb light up?

- (a) R only (b) R and S only
(c) P, Q and R only (d) P, Q and S only

43. The diagram shows an electric bell which materials would be suitable for the parts labeled P, Q and R?

- (a) A (b) B
(c) C (d) D

HINTS & SOLUTIONS

EXERCISE-1

Multiple Choice Questions

1. (b)
2. (c)
3. (d)
4. (a)
5. (d)
6. (c) It becomes hot.
7. (c) The magnetic effect of current was discovered by H.C. Oersted.
8. (d) It acts as safeguard against excessive current.
9. When the current exceeds certain limit the fuse wire gets broken and so it acts as a safeguard.
10. (d)
11. (c)
12. (b)
13. (c)
14. (b) The chemical energy stored in two cells is more than one. The electrical energy used by one bulb is less than the energy used by two bulbs. So the bulb in the circuit that has one bulb and two cells will glow the brightest.
15. (c)
16. (a)
17. (d)
18. (b)
19. (b)
20. (d)
21. (d)
22. (c)

23. (d)
24. (d) The first two fuses melt, indicating that the current in the circuit is larger than expected. This is usually due to a fault in the electrical circuit (possibly having the live wire touching the metal casing). If a third fuse with a higher rating is used, the circuit will work, but the fault is not corrected. As the current is still larger than expected, this could result in overheating of the wires.
25. (b)
26. (b) In a bulb it is called filament
27. (b) It is electromagnet.
28. (a)
29. (a)
30. (b)
31. (a)

Match the Column

32. (b)
33. (b)

Passage Based Questions

34. (b) It represents a switch in 'ON' position.
35. (c) C represents a bulb
36. (a) In the symbol of electric cell, the longer line represents the positive terminal.
37. (b) It is called filament.
38. (c) The element is a coil of wire that becomes hot and gives out heat.
39. (d)

Assertion/Reason Based Questions

40. (a) Both correct. Reason R is correct explanation of assertion A.

41. (d)

Statement Based Question

42. (b)

43. (b)

Figure Based Questions

44. (d)

45. (c) The chemical energy stored in the cell converts into electrical energy, which heats up the filament of the bulb, which upon getting heated-up glows.

46. (a) The other switches would not be able to break the circuit.

47. (a)

48. (d) Electromagnet is not a source of electric current.

49. (d) When A and B are closed (i.e. in 'ON' position) the circuit is complete. When A, B and C are closed the circuit is complete.

50. (c) Explanation: Frayed and damaged wires. Could cause a short circuit and lead to a fire. Plugging too many appliances into one socket could cause the socket to overheat and cause a fire.

8. (d)

9. (b)

10. (a)

11. (b) Because of too many cells, the electricity that was flowing through the filament of the bulb was more, causing it to melt and break contact.

12. (a)

13. (c)

14. (d)

15. (c)

16. (c)

17. (d)

18. (d)

19. (a)

20. (a)

21. (d)

22. (b)

23. (a)

24. (c)

25. (b) This is to protect the user from the hazards of electricity.

26. (b)

27. (c)

Match the Column

28. (c)

29. (a)

30. (c)

Passage Based Questions

EXERCISE – 2

Multiple Choice Questions

1. (a)

2. (c) It is called element

3. (b)

4. (d) The amount of heat produced in a wire depends upon its material, length and thickness.\

5. (b)

6. (b)

7. (d)

31. (c) An electromagnet is attached to the end of crane. An electric bell uses an electro magnet.
32. (a) When the switch is in 'ON' position, the circuit is completed and magnetic compass will show deflection due to magnetic effect of current?

Assertion/ Reason Based Questions

33. (a)
34. (c)

Statement Based Questions

35. (c) P.D. of cells > emf during charging of cell.

Figure Based questions

36. (b)
37. (c) The energy from the sun is converted to electrical energy by the solar panels, which is then converted to light energy.
38. (c)
39. (c) Rubber is an insulator and thus circuit is not complete. Bulb will not glow as current through negative terminal of cell is interrupted by rubber in case of circuit (c).
40. (d) Explanation: Options (a) is incorrect as it is only supplied with electricity from one battery. Option (b) is incorrect as it is a series circuit where the electricity is shared by all the bulbs. Options (c) and (d) are parallel circuits where the bulbs are connected to the batteries by separate paths. However, the electricity flowing in each path in option (c) is shared between two bulbs arranged in series. These bulbs will not be as bright as the bulbs in option (d). Hence option (d) will have the brightest bulbs.
41. (c)
42. (b)
43. (b) As P is acting as an electromagnet, it should be made of a soft-magnetic material such as soft iron. Q needs to be a magnetic material, such as soft iron, and R is a permanent magnet, thus it is made of steel.