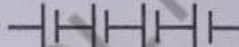
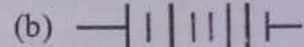
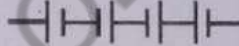
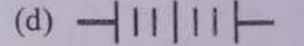


## Multiple Choice Questions

**DIRECTIONS :** The following questions 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 [2012]
  - (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 [2014]
  - (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? [2017, Critical Thinking]
  - (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 domestic wiring due to overheating
8. Which of the following actions will decrease the strength of the magnetic field of an electromagnet? [2015, Tricky]
  - (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?
- Electricity could not flow through the circuit
  - Too much electricity passed through the bulb filament
  - The wires melted in the heat
  - All of the above
12. Marking on a bulb is 60 W, 220 V. What does it signify? [Tricky]
- The bulb is connected across the 220 Volts, 60 Joules of energy is consumed for every second.
  - The bulb is connected across 60 Joules, 220 Volts of energy is consumed
  - 60 Unit of current will flow in the bulb
  - 220 Unit of current will flow in the bulb
13. MCB
- is a device based on heating effect of current
  - is a device based on magnetic effect of current
  - is a switch which automatically turns off when current in it exceeds the safe limit
  - None of these
14. The fault clearing time of a circuit breaker is usually
- few minutes
  - few seconds
  - one second
  - 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 – [2013]
- less current flows in the leading wire as compared to that in the filament
  - the leading wire has more resistance than the filament
  - the leading wire has less resistance than the filament
  - filament has coating of fluorescent material over it
16. Which has no importance for fuse wire
- Specific resistance of wire
  - Diameter of wire
  - Length of wire
  - 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
- [2014, Critical Thinking]
- 32 minutes
  - 16 minutes
  - 4 minutes
  - 2 minutes
18. When main switch of the house circuit is put off, it disconnects the
- live wire
  - neutral wire
  - earth wire
  - 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
- copper
  - cobalt
  - steel
  - nickel
21. A fuse wire repeatedly gets burnt when used with a good heater. It is advised to use a fuse wire of
- more length
  - less radius
  - less length
  - more radius
22. When the strength of the current flowing through a coil is increased
- [2015, Tricky]
- strength of the magnetic field decreases
  - strength of the magnetic field increases
  - amount of heat generated due to resistance decreases
  - strength of the magnetic field remains constant
23. A substance that acquires the properties of a natural magnet is called.
- artificial magnet
  - synthetic magnet
  - manmade magnet
  - none of these
24. Electromagnet is not used in
- electric bell
  - electric fan
  - magnetic sticker
  - television

25. The electric light switch for a bathroom is sometimes fitted on the wall outside the bathroom. [2015]
- The heat from the light affects the switch.
  - The person in the bathroom may be electrocuted if water enters the switch.
  - The switch is less likely to be damaged outside the bathroom.
  - 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)? [Critical Thinking]
- The battery is weak.
  - The switch is closed
  - th bulb has blown
  - The wires are made of copper
- A only
  - A and C only
  - B and D only
  - 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?
- type of bulbs
  - number of wires
  - types of batteries
  - number of bulbs
- D only
  - B and D only
  - A, B and C only
  - A, B, C and D
28. Reena while studying the circuit of an electric fan observes that plog connected to a fan contains as 3 fuse. Why is the fuse needed? [2016, Critical Thinking]
- To reduce the voltage across the fan
  - To protect the fan from damage caused by large current.
  - To make it easier for the current to flow.
  - To decrease the resistance of the circuit.
29. Which of the following can be used to calculate the resistance of the light bulb?
- $X - Y$
  - $Y/X$
  - $X/Y$
  - $X + Y$

### Match the Column

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

30. **Column-I**
- Battery
  - Filament
  - Electric geyser
  - Electric bell
- $A \rightarrow (p), B \rightarrow (q), C \rightarrow (r), D \rightarrow (s)$
  - $A \rightarrow (q), B \rightarrow (p), C \rightarrow (r), D \rightarrow (s)$
31. **Column-I**
- MCB
  - Electromagnet
  - Electric kettle
  - Electric bulb
- $A \rightarrow (s), B \rightarrow (r), C \rightarrow (q), D \rightarrow (p)$
  - $A \rightarrow (r), B \rightarrow (q), C \rightarrow (p), D \rightarrow (s)$
32. **Column-I**
- The fuse wire is generally an alloy of
  - Electric fuse is connected in
- Column-II**
- The thin wire in an electrical bulb that glows when electrical current passes through it
  - Combination of two or more cells
  - Makes use of heating effect of current
  - Electromagnet
- $A \rightarrow (p), B \rightarrow (q), C \rightarrow (s), D \rightarrow (r)$
  - $A \rightarrow (q), B \rightarrow (p), C \rightarrow (s), D \rightarrow (r)$
- Column-II** [2015]
- Filament
  - Element
  - Electric bell
  - Safety device
- $A \rightarrow (p), B \rightarrow (q), C \rightarrow (r), D \rightarrow (s)$
  - $A \rightarrow (q), B \rightarrow (s), C \rightarrow (r), D \rightarrow (p)$
- Column-II**
- the metal of an electrical appliance is earthed
  - the live wire and the neutral wire come in direct contact

- (C) To avoid the risk of electric shocks
- (D) A short circuit occurs whenever
- (a)  $A \rightarrow (p), B \rightarrow (q), C \rightarrow (r), D \rightarrow (s)$
- (c)  $A \rightarrow (r), B \rightarrow (s), C \rightarrow (p), D \rightarrow (q)$

- (r) lead and tin
- (s) series in the beginning of the electric circuit
- (b)  $A \rightarrow (q), B \rightarrow (p), C \rightarrow (s), D \rightarrow (r)$
- (d)  $A \rightarrow (s), B \rightarrow (r), C \rightarrow (q), D \rightarrow (p)$

**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.

33. **Statement 1 :** The emf of a battery equal the potential difference between its terminals when the terminals are not connected externally.

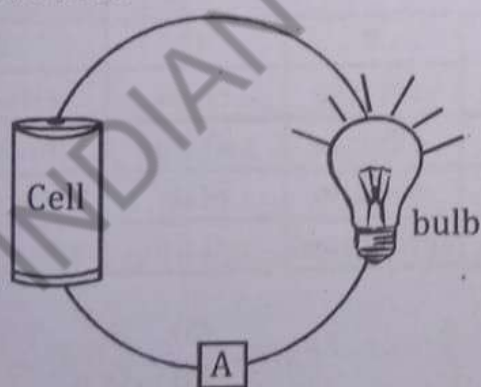
**Statement 2 :** Terminals potential difference can be greater than emf of cell.

**Statement 3 :** When current is flowing in circuit then terminal voltage is less than emf of cell.

**Figure Based Questions**

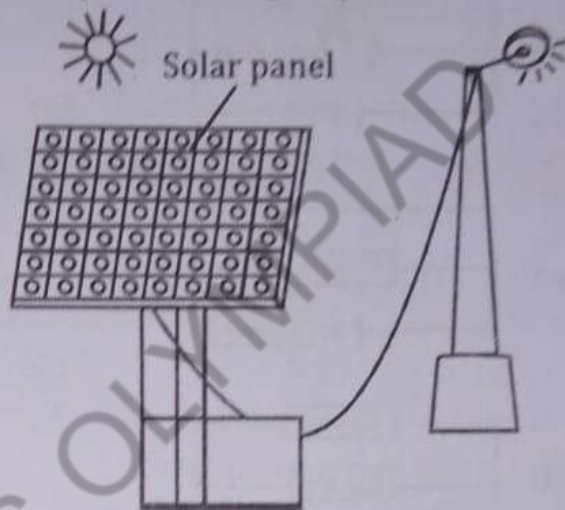
**DIRECTIONS :** On the basis of following diagram/ picture answer the questions given below :

34. Which of the following objects will make the bulb glow when put in position A of the material tester shown here. (2012)



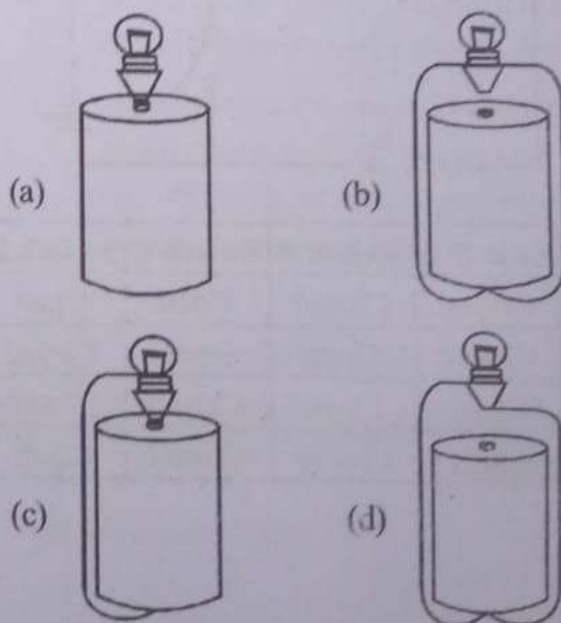
- (a) comb
- (b) iron nail
- (c) matchstick
- (d) book

35. Which of the following energy conversions takes place in the figure given here?

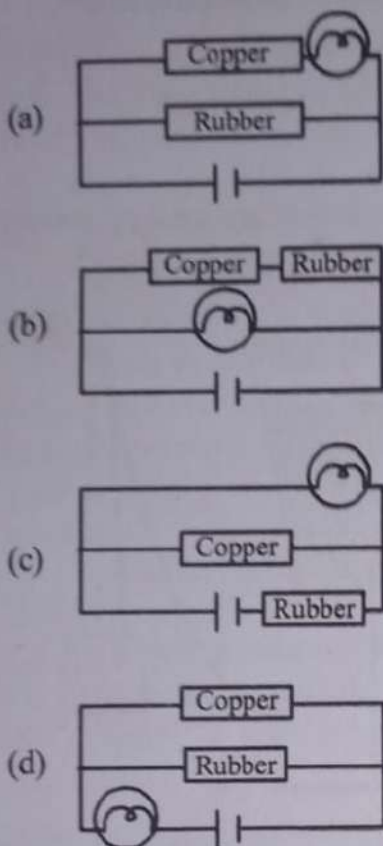


- (a) Solar  $\rightarrow$  electrical
- (b) Solar  $\rightarrow$  light  $\rightarrow$  heat
- (c) Solar  $\rightarrow$  electrical  $\rightarrow$  light
- (d) Solar  $\rightarrow$  electrical  $\rightarrow$  light  $\rightarrow$  heat

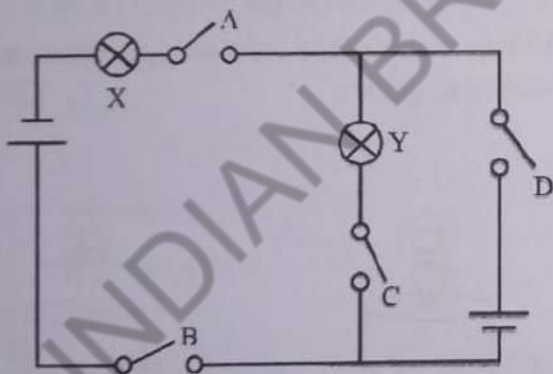
36. Bulb in which of the following arrangements will be able to glow? [Tricky]



37. In which circuit the bulb will not light up? [2014]

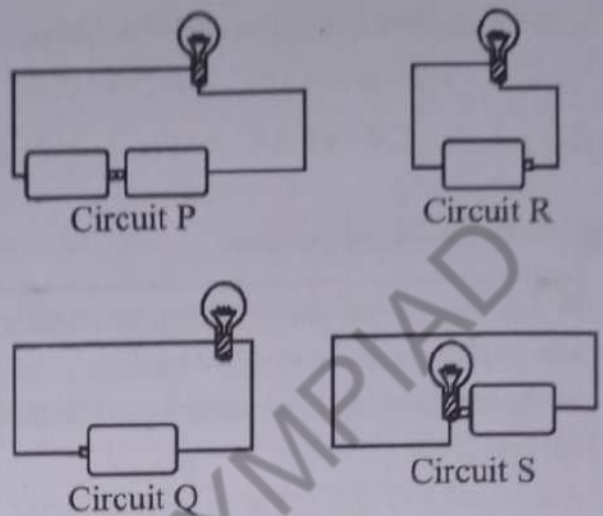


38. In the circuit below, which switch should be left open and which switch should be left closed so that only bulb Y lights up? [2013]



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

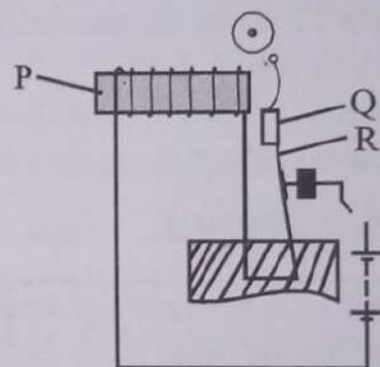
39. Four different circuits are shown below.



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

40. The diagram shows an electric bell [Critical Thinking]



Which materials would be suitable for the parts labelled P, Q and R?

	P	Q	R
A	soft iron	brass	soft iron
B	soft iron	soft iron	spring steel
C	soft iron	brass	brass
D	spring steel	soft iron	spring steel

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

5. (b)      6. (b)      7. (d)  
 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)  
 28. (b) To protect the fan from damage caused by large current.  
 29. (b)  $= Y/X$

### Match the Column

30. (c)  
 31. (a)  
 32. (c)

### Statement Based Questions

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

### Figure Based Questions

34. (b)  
 35. (c) The energy from the sun is converted to electrical energy by the solar panels, which is then converted to light energy.  
 36. (c)  
 37. (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).  
 38. (c)  
 39. (b)  
 40. (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.