

**Current Electricity****DPP - 1**

1. Name the charges produced on each of the substances
  - (a) when an ebonite rod is rubbed with cat's skin
  - (b) a glass rod is rubbed with silk.
2. What is your observation when a charged ebonite rod is brought near
  - (a) a freely suspended and charged glass rod
  - (b) a freely suspended and charged ebonite rod?
3. Fill in the blank spaces:
  - (a) ..... charges repel each other.
  - (b) Opposite charges..... each other.
  - (c) A charged ebonite rod..... tiny bits of paper.
4. On the basis of electron model explain the electrification:
  - (a) When the glass rod is rubbed with silk.
  - (b) When the ebonite rod is rubbed with fur.
5. Fill in the blank spaces:
  - (a) Positive electrification is due to..... of electrons as compared to.....
  - (b) Negative electrification is due to..... of electrons as compared to.....
6. On the basis of electron model explain :
  - (a) What are conductors? Give four examples of conductors.
  - (b) What are insulators? Give four examples of insulators.
7. Pick out conductors and insulators from the following list :
 

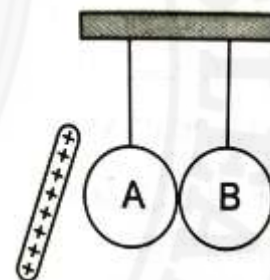
|              |                             |                                |                               |                              |
|--------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|
| (i) Graphite | (ii) Asbestos               | (iii) Mica                     | (iv) Copper sulphate solution | (v) Alcohol                  |
| (vi) Copper  | (vii) Caustic soda solution | (viii) Sulphuric acid solution | (ix) Zinc                     |                              |
| (x) Lead     | (xi) Glass                  | (xii) Vacuum                   | (xiii) Benzene                | (xiv) Aluminium (xv) Starch. |
8. Answer the following:
  - (a) What is the electric potential of earth?
  - (b) What do you understand by the terms (i) conventional current (ii) electronic current? Which amongst the two is real current ?
  - (c) On the basis of convention, which amongst the positively and negatively charged body is at a (i) higher potential (ii) lower potential?
  - (d) If a positively charged sphere A is connected to earth through a copper wire, show the direction of the flow of (i) conventional current (ii) electronic current, by a neat diagram.
  - (e) If the sphere in (d) is replaced by a positively charged sphere, by another diagram show the (i) direction of conventional current (ii) direction of electronic current.
9. On the basis of atomic model, state the origin of electric charge acquired by two bodies, when rubbed together, such that one of them acquires positive charge and the other negative charge.
10. Charging by friction is accompanied by loss or gain of electrons. In the following cases, which body loses electrons and which body gains electrons when:
  - (a) the glass rod is rubbed with silk
  - (b) an ebonite rod is rubbed with fur?

## Current Electricity

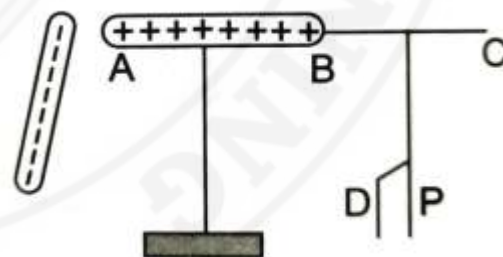
## DPP - 2

1. Name two ways of charging an insulated conductor. State in which of the two ways, stated by you the charge is shared.
2. Define electric conduction. Describe and explain on the electron model, how an insulated brass sphere is charged positively.
3. What do you understand by the term electrostatic induction ?
4. During induction charges are not shared. Explain, how the body gets electrically charged.
5. What is an electroscope? State three uses of an electroscope.
6. A positively charged rod is brought near the neutral pith-ball electroscope. Describe all what you will observe and explain your observations on the basis of electron model.
7. How will you charge a neutral G.L.E. negatively by induction ? Illustrate your answer by diagrams and explain on the basis of electron model.
8. How is an electroscope used to detect a charge on a body ?
9. How is gold leaf electroscope used to find nature of charge on an electrically charged body?
10. Repulsion is the surest test of electrification. Explain the statement.

11. Two metal spheres A and B are suspended from two silk threads and a positively charged glass rod is held near A, as shown in diagram.



- (a) Describe, what you will observe.
  - (b) What charge appears on A and B?
  - (c) Explain the appearance of charge on the basis of electron model.
12. In Fig. alongside shows an uncharged insulated conductor AB, which is in electrical contact with gold leaf electroscope plate C. A negatively charged rod is brought near the end A. Answer the following questions:



- (a) What charge appears at A and why?
  - (b) What charges are present at B, C and D and why?
  - (c) If negatively charged rod is taken away, state your observation.
13. How will you differentiate between an insulator and a conductor by using charged electroscope?

## Current Electricity

## DPP - 3

Select the correct option.

- The existence of a negative charge on a body implies that it has :
  - lost some of its electrons
  - lost its protons
  - acquired some electrons from outside
  - acquired some protons from outside
- A sure test of electrification is
 

|                |               |
|----------------|---------------|
| (a) attraction | (c) friction  |
| (b) repulsion  | (d) induction |
- The rate of flow of an electric charge is called:
 

|                      |                        |
|----------------------|------------------------|
| (a) electric current | (c) electric potential |
| (b) electric energy  | (d) none of these      |
- A glass rod is rubbed with silk. The silk acquires :
 

|                     |                                  |
|---------------------|----------------------------------|
| (a) positive charge | (c) remains electrically neutral |
| (b) negative charge | (d) none of these                |
- A thin rectangular copper plate measuring 10 cm x 2 cm is charged negatively. The charges start leaking. The maximum leaking takes place on:
 

|                 |                       |
|-----------------|-----------------------|
| (a) its corners | (c) on the width side |
| (b) length side | (d) none of these     |
- A charged glass rod is held close to the brass cap of GL.E., such that it is not touching the brass cap. The leaves of GL.B. will acquire
 

|                     |                   |
|---------------------|-------------------|
| (a) positive charge | (c) no charge     |
| (b) negative charge | (d) none of these |

### Subjective Questions

- Describe an experiment to prove that equal and opposite charges are produced when glass rod is rubbed with silk.
- A negatively charged cloud passes over a high rise building. Explain in detail how lightning strikes.
- How is a high rise building protected from lightning?
- What causes lightning?