

Class VIII (CHAPTER-14) Chemical Effects of Electric Current
Answers

1.

- (a) Most liquids that conduct electricity are solutions of acids, bases and salts.

(The solutions of acids, bases or salts are conducting in nature. They allow the current to pass through.)

- (b) The passage of an electric current through a solution causes chemical effects.

(When an electric current pass through a solution, the solution decomposes into its positive and negative ions. This process of decomposition of the solution is a chemical effect.)

- (c) If you pass current through copper sulphate solution, copper gets deposited on the plate connected to the negative terminal of the battery.

(When an electric current pass through a copper sulphate solution, the solution decomposes into positively charged copper ions and negatively charged sulphate ions. These positively charged copper ions get attracted towards the plate which is connected to the negative terminal of a battery.)

- (d) The process of depositing a layer of any desired metal on another material by means of electricity is called electroplating.
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2. The deflection in the compass needle shows that current is flowing through the wounded wire and hence, through the circuit. The circuit is complete since free ends of the tester are dipped in a solution. The solution is certainly a conducting solution. This is the reason why the compass needle shows a deflection.
3. Liquids like lemon juice, saltwater and vegetable oil allow electricity to pass through them. Hence, these liquids can be used as in the beaker to show the given effect.
4. The bulb may not glow because of the following reasons:
 - (i) Liquid in the beaker is non-conducting. In such case, the electric current would not be able to pass through the liquid. Hence, the circuit is not complete.
 - (ii) Electric current in the circuit is very weak. This can happen if the material used for making the circuit is not a good conductor of electricity or the battery does not have sufficient energy to generate electricity.
5.
 - (i) Liquid A is a better conductor than liquid B.

The amount of current flowing through a conducting solution depends on the conductivity of the solution. With more conductivity, more current passes through the solution and vice-versa. Hence, the conductivity of liquid A is more than the conductivity of liquid B.

6. No, pure water does not conduct electricity. This is because pure water is devoid of any salts. Pure water can conduct electricity when a pinch of common salt is added to it, as salt solution is conducting in nature.
 7. Water may conduct electricity. If the electrical supply for the area is not shut off and water is poured over electrical appliances, then electricity may pass through water and harm the firemen. That is why, in case of a fire, the firemen shut off the main electrical supply for the area before they use the water hoses.
 8. Sea water contains more dissolved salts than the drinking water. Hence, it is more conducting than the drinking water. Because of this reason, the compass needle deflects more in seawater than in the drinking water.
 9. No, it is not safe to repair electrical appliances outdoors during heavy downpour. This is because rainwater contains dissolved salts. Therefore, rainwater can conduct electricity. The electrician may get electrical shocks while working outdoors during rain.
 10. Rainwater contains dissolved salts. This makes it a conducting solution. There are no dissolved salts present in the distilled water. Hence, rainwater can allow electricity to pass through it while distilled water cannot.
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11. Examples of electroplated objects are as follows:

- (i) Chromium plating is done on different parts of cars, buses and motorcycles to give them shiny appearance.
- (ii) A fine layer of gold is deposited on the silver ornaments and they are called gold-plated ornaments.
- (iii) Iron used in constructing a building is coated with a layer of zinc. This protects iron from corrosion and rusting.

12. Copper ion is positively charged. It is attracted towards the plate which is connected to the negative terminal of the battery. As copper ions are transferred to the thin copper plate, this thin pure copper plate must be connected to the negative terminal of the battery. Consequently, impure copper rod is connected to the positive terminal of the battery.
