Class 12 Chemistry Chapter 3 Electrochemistry MCQs

1. A cathode and an anode are the most common components of an electrochemical cell. Which of the following claims about the cathode is correct?
a) Oxidation occurs at the cathode
b) Electrons move into the cathode
c) Usually denoted by a negative sign
d) Is usually made up of insulating material

Answer: b

Explanation: Metal electrodes are commonly used as cathodes. It is on this electrode that reduction occurs. In a galvanic cell, the cathode is the positive electrode, while in an electrolytic cell, it is the negative electrode. The cathode attracts electrons.

2. Which of the following claims about electrochemical cells is true?
a) Cell potential is an extensive property
b) Cell potential is an intensive property
c) The Gibbs free energy of an electrochemical cell is an intensive property
d) Gibbs free energy is undefined for an electrochemical cell

Answer: b

Explanation: Because cell potential is independent of the amount of material present, it is an intense attribute. Gibbs free energy is a property that is defined for an electrochemical cell and is a broad characteristic because it is dependent on the amount of material present.

3. Which of the following does not belong in the category of electrochemical cells?
a) Voltaic cell
b) Photovoltaic cell
c) Electrolytic cell
d) Fuel Cell

Answer: b

Explanation: A voltaic cell, also known as a galvanic cell, is an electrochemical cell that transforms chemical energy to electrical energy. Light energy is converted into electrical energy using photovoltaic cells. An electrolytic cell turns electrical energy into chemical energy and is a type of electrochemical

cell. An electrochemical cell that converts the chemical energy of a fuel and an oxidizing agent into electricity is known as a fuel cell.

4. Which of the following assertions about a main cell is correct?
a) An example of a primary cell is a mercury cell
b) An example of a primary cell is a nickel-cadmium storage cell
c) The electrode reactions can be reversed
d) It can be recharged

Answer: a

Explanation: A primary cell is one in which the electrode reactions only happen once and cannot be reversed with electrical energy. As a result, primary cells are unable to be recharged. A main cell, such as a mercury cell, is different from a secondary cell, such as a nickel-cadmium storage cell.

5. In a dry cell, which of the following is the electrolyte?
a) Potassium hydroxide
b) Sulphuric acid
c) Ammonium chloride
d) Manganese dioxide

Answer: c

Explanation: In a dry cell, the electrolyte is ammonium chloride, which is applied as a moist paste close to the zinc anode. Ammonium chloride is replaced by sodium chloride in some "heavy-duty" dry cells by zinc chloride.

6. Which of the following statements about a lead storage cell (or a lead-acid battery) is false?
a) It is a primary cell
b) The cathode is made up of lead(IV) oxide
c) The anode is made up of lead
d) The electrolyte used is an aqueous solution of sulphuric acid

Answer: a

Explanation: A secondary cell with a grid of lead packed with finely separated spongy lead for an anode and a grid of lead packed with lead(IV) oxide for a cathode is known as a lead storage cell. An aqueous solution of sulphuric acid is utilized as the electrolytic solution in a lead-acid battery.

7. The conductivity of electrolytic conductors is due to _____
a) Flow of free mobile electrons

b) Movement of ions
c) Either movement of electrons or ions
d) Cannot be said

Answer: b

Explanation: The flow of free mobile electrons causes conductance in metallic conductors, while the movement of ions in a fused electrolyte solution causes conductance in electrolytic conductors.

8. The process of transmitting electric current through an electrolyte's solution to decompose it is known as _____
a) Electrolyte
b) Electrode
c) Electrolysis
d) Electrochemical cell

Answer: c

Explanation: Electrolysis is the decomposition of an electrolyte by conducting an electric current through its solution.

9. In a fuel cell, which of the following can be utilized as a fuel?
a) Nitrogen
b) Argon
c) Hydrogen
d) Helium

Answer: c

Explanation: The simplest element is hydrogen. It's also widely available throughout the universe. Although hydrogen has a lot of energy, an engine that runs on it produces nearly no pollutants. As a result, it's used in a fuel cell.

10. Which of the following is given to a fuel cell's cathode?
a) Hydrogen
b) Nitrogen
c) Oxygen
d) Chlorine

Answer: c

Explanation: An anode, cathode, and electrolyte membrane make up a fuel cell. In a normal fuel cell, hydrogen is passed through the anode and oxygen is passed via the cathode.