

## Class 12 Chemistry Chapter 6 General Principles and Processes of Isolation of Elements Chemistry MCQs

1. Which of the following is not a suitable ore for extracting iron?

- a) Hematite
- b) Magnetite
- c) Siderite
- d) Iron Pyrites

**Answer:** d

**Explanation:**  $\text{FeS}_2$  is the chemical formula for iron pyrite. Because iron pyrite is exothermic and poses a safety risk in mines, it is more cost-effective to extract iron from other ores like magnetite and hematite. Pyrites are generally unstable, and they have the potential to transform into sulphurous minerals.

2. Which of the following ore is used to extract silver?

- a) Calamine
- b) Cinnabar
- c) Argentite
- d) Malachite

**Answer:** c

**Explanation:** Argentite, commonly known as silver glance, is the only silver ore with the chemical composition  $\text{Ag}_2\text{S}$  among the above choices. Smelting or chemical leaching is a straightforward procedure for extracting silver from silver glance.

3. Which of the scenarios is best for hand-picking concentration?

- a) When the ores are good conductors of electricity

- b) When the impurities can be distinguished from the ore by the naked eye
- c) When either the ore or the impurities are magnetic
- d) When the ore particles are heavier than the impurities

**Answer:** b

**Explanation:** It is vital for contaminants to be easily discernible from ore particles when concentration is done by hand picking. The ore is deemed to be pure if these contaminants can be seen with the naked eye. The ore is said to be suitable for concentration by hand picking.

4. By electromagnetic separation, where are magnetic particles collected in concentration?
- a) Away from the magnetic roller
  - b) On the conveyor belt
  - c) Below the magnetic roller
  - d) Above the magnetic roller

**Answer:** c

**Explanation:** The powdered ore is dropped over a conveyor belt that moves around two rollers, one of which is equipped with an electromagnet. The magnetic roller attracts the magnetic particles when the ore particles move across the belt. As a result, two heaps form independently. Magnetic particles are gathered below the magnetic roller, whereas non-magnetic particles are collected away from the roller.

5. In froth flotation, what role does the revolving paddle play?
- a) Enhances wettability of gangue particles
  - b) Stabilises the froth
  - c) Draws in air causing frothing
  - d) Enhances non-wettability of the ore particles

**Answer:** c

**Explanation:** The rotating paddle in the froth flotation process violently agitates the suspension of powdered ore in water, as well as the collectors and froth stabilisers, generating frothing.

6. What is the name of the metallurgical process in which the ore is leached and the metal is extracted using electrolysis?

- a) Zone refining
- b) Hydrometallurgy
- c) Liqutation
- d) Thermite process

**Answer:** b

**Explanation:** Hydrometallurgy is a technique for extracting metals from their ores in the subject of extractive metallurgy. Hydrometallurgy is the process of extracting metals from ores, concentrates, and recycled or residual materials using aqueous solutions.

7. Oxides are formed when food is roasted. But why is it necessary to roast oxide ores?

- a) To avoid gangue particles
- b) To get crude metal with using oxidising agent
- c) To remove volatile impurities in the form of their oxides
- d) To make the ore porous

**Answer:** c

**Explanation:** Roasting is used to eliminate volatile impurities in the form of oxides from oxide ores. Metals are easier to acquire (by reduction) from their oxides than from carbonates or sulphides. As a result, the ore must first be transformed to metal oxide before it can be reduced.

8. Electrolysis does not remove which of the following metals?

- a) Na
- b) Mg
- c) Al
- d) Fe

**Answer:** d

**Explanation:** In reality, choosing the right reducing agent is crucial to extracting a metal from its ore. Because iron is a fairly active metal, its oxides can be reduced with carbon rather than electrolysis. Electrolysis is used to recover reactive metals like aluminium, while reduction with carbon is used to extract less reactive metals like iron.

9. What is the method for extracting sodium from halide ores like sodium chloride (NaCl)?

- a) Pyro metallurgy
- b) Hydrometallurgy
- c) Electro metallurgy
- d) Magnetic separation

**Answer:** c

**Explanation:** Sodium is a highly electropositive metal that can be extracted readily from sodium chloride using an electro metallurgy or electrolysis technique. Metals such as copper, iron, and silver are extracted using pyrometallurgy and hydrometallurgy.

10. Which of the following is an illustration of metallurgical electrochemical principles?

- a) Baeyer's process
- b) Solvay process
- c) Bergius process
- d) Hall-Heroult process

**Answer:** d

**Explanation:** The Hall-Heroult process reduces bauxite to virtually pure aluminium by an electrochemical reaction. The bauxite is dissolved in a molten electrolyte containing sodium, fluorine, and aluminium and kept at a high temperature. Aluminium is deposited at the cathode and oxygen gas is produced at the anode in this process.