1. How does the nature of bonding (ionic vs covalent) influence the physical properties and natural occurrence of metals and non-metals?

2. How does the type of bond in metal oxides affect their behavior in water and their role in corrosion or rusting?

3. Correlate the position of a metal in the reactivity series with its method of extraction and the type of compound it forms.

4. Compare the formation of polar covalent and ionic compounds based on electronegativity and give real-life examples.

5. How does the nature of ore and gangue affect metallurgy steps like concentration and reduction?

6. Why do high-reactivity metals require electrolytic reduction, and how is this used in refining too?

7. How does alloying improve resistance to corrosion and relate it to bonding and physical properties?

8. How do physical properties of metals and non-metals relate to bonding type and extraction method from minerals or ores?

9. How does the chemical nature of non-metal and metal oxides help in refining and separation during metallurgy?

10. Explain how rusting is an electrochemical process and how this principle is reversed in electrolytic refining.