(5 20)

1. Osmosis

2. Law of multiple proportions

3. Breeder reactor

4. Le Chatelier's principle

(20 80)

1. Generally, there are three types of electrochemical cells. Please explain what is these three types of electrochemical cells, then give us two examples of each type of electrochemical cells.

2. Can we use electron configuration and band theory to explain the phenomenon of conductor, semiconductor and non-conductor? Discuss your reasons.

3. Define Hess's law. Explain, with one example, the usefulness of Hess's law in thermochemistry.

4. Define boiling-point elevation and freezing-point depression. Write the equations relating boiling-point elevation and freezing-point depression to the concentration of the solution. Define all the terms, and give their units.