Engineering Chemistry

Chapter 1: Water and Its Treatment

1.1 Introduction
1.2 Types of Impurities in Water
1.3 Water Quality Parameters
1.4 Treatment of Water for Domestic Supply (or) Municipal Water Treatment
1.5 Desalination of Brackish Water
1.6 Boiler Troubles (or) Boiler Feed Water
1.7 Treatment of Boiler Feed Water (Softening or Conditioning Methods)

Chapter 2: Nanochemistry

2.1 Basics of Nanochemistry
2.2 Size Dependent Properties of Nanomaterials
2.3 Types of Nano Materials
2.4 Preparation of Nanomaterial
2.5 Applications of Nanomaterials

Chapter 3: Phase Rule and Composites

3.1 Introduction to Phase Rule
3.2 Phase Rule
3.3 Phase Diagram
3.4 One-Component System: The Water System
3.5 Experimental Method of Construction of a Simple Eutectic Phase Diagram
3.6 Two Component Systems
3.7 Binary Alloy System (or) The Simple Eutectic System
3.8 Introduction of Composite Materials
3.9 Need for Composites
3.10 Characteristics of Composites
3.11 Constituents of Composites
3.12 Types of Composites

Chapter 4: Fuels and Combustion

4.1 Characteristics (or) Requirements of a Good Fuel
4.2 Classification of Fuel
4.3 Analysis of Coal
4.4 Carbonisation
4.5 Liquid Fuels
4.6 Knocking
4.7 Power Alcohol
4.8 Bio Diesel
4.9 Introduction of Combustion
4.10 Ignition Temperature (IT)
4.11 Flue Gas Analysis (ORSAT Method)
4.12 Carbon Emission
4.13 Carbon Footprint

Chapter 5: Energy Sources and Storage Devices

5.1 Introduction and Stability of Nucleus
5.2 Nuclear Reactor (or) Pile
5.3 Breeder Reactor
5.4 Solar Energy Conversion
5.5 Recent Developments in Solar Cell Materials
5.6 Wind Energy
5.7 Geo-thermal Energy
5.8 Introduction to Batteries
5.9 Dry Cell (or) Leclanché's Cell
5.10 Lead - Acid Storage Cell
5.11 Lithium-ion Battery (LIB) (or) Lithium-ion Cell
5.12 Electric Vehicles
5.13 Fuel Cells
5.14 Super Capacitor

Important Questions