CHEMISTRY

CHEMICAL REACTIONS AND EQUATIONS

1. Why is the balancing the chemical equation is necessary?
2. Why should the magnesium ribbon be cleaned before burning?
3. Explain combination reaction.
4. Explain exothermic and endothermic reaction.
5. What is meant by decomposition reaction? Explain with examples.
6. Explain manufacturing of cement.
7. Explain displacement reaction.
8. Explain precipitation reaction.
9. Short note on corrosion.
10. Short note on rancidity.

ACID, BASES AND SALTS

1. Give properties of acids and bases
2. What is an indicator? Mention its use for testing acids and base
3. Explain reactions of metal carbonates and metal hydrogen carbonates react with acids.
4. How do acids and base reacts with each other?
5. What do all acids and base have in common?
6. Explain dilution reaction process.
7. Short note on pH scale.
8. What is meant by strong and weak acids; strong and weak bases?
9. Explain importance of pH in everyday life.

METALS & NON METALS

1. Give physics properties of metals and non-metals
2. State exceptions of metals and non-metals.
3. Explain classification of metals on the basis of reactivity.
4. Explain steps involved in the extraction of pure metal from its ores.
5. Explain thermite process.
6. Explain electrolytic refining process of metals.
7. Give prevention of corrosion.
8. Note on alloy

CARBON AND ITS COMPOUND

1. Explain tetravalency of carbon.
2. Explain the formation of the hydrogen, chlorine, ammonia and methane molecule by covalent bond
3. Note: Allotropes of carbon.
4. Explain catenation property of carbon..
5. Explain saturated and unsaturated carbons.
6. Explain classification of hydrocarbons based on their structures.
7. Explain homologous series.
8. Explain in brief the nomenclature of carbon compounds.
9. Write in detail about soap and detergent

PERIODIC CLASSIFICATION OF ELEMENTS

1. Explain Dobereiner's law of triads with limitations.
2. Explain Newlands law of octaves with limitations.
3. Explain contribution of Mendeleev in classification of elements along with its limitations.
4. What is a valiancy? Explain its trend in in a period and group.

5. What is meant by atomic size? Explain its trends in a period and group.
6. Explain the trends of metallic and non-metallic character in a period and group.
7. Give difference between Mendeleev's periodic table and Modern periodic table.

BIOLOGY

LIFE PROCESSES

1. Explain some important life processes which are needed for living beings.
2. Explain modes of nutrition in detail.
3. Explain role of stomata in plants.
4. Explain nutrition in amoeba.
5. Explain human digestive system in detail with neat diagram.
6. Explain aerobic respiration.
7. Explain gaseous exchange in plants.
8. Describe the human respiratory system.
9. Explain breathing mechanism in human.
10. What are the different ways in which glucose is oxidized to provide energy in the organism?

CONTROL AND COORDINATION

1. Explain how nervous impulses travel in the body.
2. Explain reflex action with examples.
3. Explain reflex arc and spinal reflex.
4. Describe human brain with specific functions of its different parts.
5. How is central nervous system protected?

HOW DO ORGANISMS REPRODUCE?

1. Why do organisms of same species look similar?
2. Explain cell reproduction.
3. How is the process of making variants be speed up through the sexual mode of reproduction?
4. Explain sexual reproduction in plants.

5. Explain male reproductive system.
6. Explain female reproductive system.
7. Explain menstruation.
8. Explain Contraceptive methods.

HEREDITY & EVOLUTION

1. Explain the creation of diversity over succeeding generation.
2. Explain the inheritance of anyone character in two successive generations.
3. Explain Mendel's experiment on a pea plant.
4. How does the mechanism of heredity work?
5. Describe sex determination in human beings.
6. What is genetic drift? How genetic drift provides diversity without any adaptation?
7. Explain acquired and inherited traits.
8. Explain the mechanism of speciation.
9. Explain homologous and analogous organs.
10. Note on Fossils
11. Give difference between (a) acquired and hereditary characteristics
    (b) Homologous and analogous organs

PHYSICS

LIGHT- REFLECTION & REFRACTION

1. Write basic properties of light.
2. What is reflection of light? Give its laws and types
3. Explain reflection by plane mirror.
4. What is refraction of light? Give laws of refraction.
5. Explain refraction through a glass slab.
6. What is absolute refractive index? Derive relation for Snell's law
7. with neat diagram show position, nature and relative size when an object is placed before convex lens

(a) At infinity (b) beyond 2F1 (c) at 2F1 (d) between F1 & 2F1 (e) at F1

8. Explain magnification produced by a lens.
9. Note: Power of lens.

HUMAN EYE AND COLOURFUL WORLD

1. What is a prism? What is its angle? How many surfaces does it possess?
2. Explain refraction of light through a triangular prism.
3. What s dispersion? What is spectrum? Explain dispersion of light through a glass through a prism.
4. Explain rainbow formation.
5. What is atmospheric refraction? Explain twinkling of stars.
6. Why planets do not twinkle?

ELECTRICITY

1. Define electric current. Write its SI unit. Explain difference between electron current and conventional current.
2. How charges flow in a conductor? Explain it with a diagram.
3. Note: On electric potential and potential difference.
4. Write symbols of some commonly used components in a circuit.
5. State ohms law and give its experiment.
6. State two factors on which strength of an electric current.
7. Explain series connection.
8. Explain parallel connection.
9. State merits and demerits of series as well as parallel connection.
10. Explain Joules law.
11. Note: Fuse

MAGNETIC EFFECTS OF ELECTRIC CURRENT

1. Give brief info about magnetic compass.
2. Give characteristics of magnetic field line.
3. Explain force on a current carrying conductor in a magnetic field.

SOURCES OF ENERGY

1. Which points should be considered while selecting a fuel for ourselves?
2. Note: Solar energy
3. Explain in short (a) Tidal energy (b) Wave energy (c) Ocean thermal energy
4. Explain nuclear fission.
5. How we can have environmental consequences for using sources of energy
6. Explain "why biomass is better as compared to fossil fuel.

OUR ENVIRONMENT

1. Explain how ozone layer is formed? State its significance.
2. How can you help in reducing the problem of waste disposal? Give any two methods.

SUSTAINABLE MANAGEMENT OF NATURAL RESOURCES

1. Why do sustainable natural resource management is needed?
2. What is biodiversity? Explain in detail.
3. Explain how forest resources are affected by major stakeholders.
4. Mention serious effects of deforestation.
5. Note: Chipko Andolon.
6. Give few steps for controlling carbon dioxide levels in atmosphere.
7. Give advantages and disadvantages of coal and petroleum.