Chapter-1 Chemical Reactions and Equations
Q1. Explain various types of reactions with examples.
Q2. Explain the following terms with examples: corrosion & rancidity.
Q3. Give reasons:
   (a) Magnesium ribbon should be cleaned before burning in air.
   (b) Respiration is considered as an exothermic reaction.
   (c) Oil and fat containing food items flushed with nitrogen.
   (d) Why we store silver chloride in dark coloured bottles.
Q4. Write the balanced chemical equation:
   (a) Ferrous sulphate crystals on heating, break into ferric oxide, sulphur dioxide and sulphur trioxide.
   (b) Copper nitrate on heating gives copper oxide, oxygen gas and nitrogen dioxide.
   (c) Lead nitrate reacts with potassium iodide to give lead iodide and potassium nitrate.
   (d) Barium chloride reacts with aluminium sulphate to give aluminium chloride and barium sulphate.

Chapter-2 Acids, Bases and Salts
Q1. Give compound name, preparation and uses of the following: bleaching powder, washing soda, baking soda and plaster of paris.
Q2. Give reasons:
   (a) Curd and sour substances are not kept in brass and copper vessels.
   (b) Dry HCL gas does not change the colour of the dry litmus paper.
   (c) It is recommended that acid should be added to water and not water to the acid.
   (d) Distilled water does not conduct electricity, whereas rain water does.
Q3. Define the following terms: Neutralization reaction, chloralkali process, and antacids.
Q4. (a) What is added to make cake soft and spongy?  
   (b) Explain tooth decay. How can it be prevented?

Chapter-3 Metals and Non-Metals
Q1. Differentiate between metals and non-metals on the basis of their physical and chemical properties.
Q2. Define the following terms: amphoteric oxide, aquaregia, thermite process, roasting, calcination and reactivity series.
Q3. Give reasons for the following:
   (a) Sodium is kept immersed in kerosene oil.
   (b) Ionic compounds have high melting points.
   (c) Zinc does not evolve hydrogen on reaction with HNO₃.
   (d) Silver articles turn black and copper items turn green after sometimes.
Q4. (a) Explain electrolytic refining process of copper with the help of a diagram and also explain what happens at cathode and anode.
Q5. How is the method of extraction of metals high up in the reactivity series different from that for metals in the middle? Why can the same process not be applied for them? Name the process used.
Q6. (a) Write electron dot structure of sodium, oxygen and magnesium.
   (b) Show the formation of Na₂O and MgO by transfer of electrons.

Chapter-4 Carbon and Its Compounds
Q1. Differentiate between soaps and detergents. Explain cleansing action of soap and scum formation.
Q2. (a) How can you differentiate between ethanol and ethanoic acid on the basis of their physical and chemical properties? List two tests to distinguish between an alcohol and a carboxylic acid. 
(b) What happens when ethanol compound is treated with excess of conc. H₂SO₄.
Q3. Define the following terms with example: homologous series, denatured alcohol, hydrogenation, addition reaction, substitution reaction, combustion reaction, saponification reaction, esterification reaction and oxidation reaction.
Q4. Explain why carbon forms compounds mainly by covalent bond.
Q5. Name the following compound:
   (a) CH₃CH₂CH=CH₂
   (b) CH₃CH₂CH₂-C(CH₃)₂-CH₃
   (c) CH₃CH₂CHO
   (d) CH₃CH(OH)CH₃
Q6. Write the name and structure of a saturated compound in which the carbon atoms are arranged in a ring.

Chapter-5 Periodic Classification of Elements
Q1. Give the limitations of Dobereiner’s triads, Newland’s law of octave and Mendeleev’s periodic table.
Q2. Explain the criteria for the classification in Mendeleev’s periodic table. Also mention its achievements.
Q3. How many groups and periods are there in the modern periodic table? How do the atomic size and metallic character of elements vary as we move down a group and from left to right in a period?
Q4. State Modern periodic law.

Chapter-6 Life Processes
Q1. Write the functions of saliva, HCl in stomach, Bile juice, pepsin, trypsin, amylase, lipase and villi.
Q2. Describe the mechanism of breathing in human beings. How lungs are designed in human beings to maximize the area for exchange of gases?
Q3. Differentiate between the following:
   (a) xylem and phloem
   (b) artery, veins and capillary
   (c) aerobic and anaerobic respiration
Q5. Explain the structure and functions of nephron.

Chapter-7 Control and Coordination
Q1. What is reflex action? Explain reflex arc with the help of a flowchart.
Q2. Name and explain the functions of plant hormones.
Q3. State the source of secretion and functions of following hormones: insulin, adrenaline, thyroxin, testosterone, progesterone, estrogen and growth hormones.
Q4. Explain the structure and functions of brain.
Q5. Explain the structure and functions of a neuron.
Q6. Plants do not have any nervous system but yet, if we touch a sensitive plant, some observable changes take place in its leaves. Explain how could this plant respond to the external stimuli and how it is communicated.

Chapter-8 How do Organisms Reproduce?
Q1. Explain three methods of asexual reproduction in organisms with examples.
Q2. What is vegetative propagation? Give its advantages and disadvantages.
Q3. Draw a longitudinal section of a flower.
Q4. Give the functions of the followings: testis, vas deferens, seminal vesicles, prostate gland, ovary and fallopian tube.
Q5. Draw a well labelled diagram of a human female reproductive organ.
Q6. Explain various methods of contraception. State four reasons for adopting contraceptive methods.
Q7. Explain the process of budding in Hydra and Yeast with the help of labelled diagrams.

**Chapter-9 Heredity and Evolution**
Q1. Define the following terms: natural selection, genetic drift, geographical isolation, speciation and vestigial organs.
Q2. Differentiate the following:
   (a) Acquired trait and inherited trait.
   (b) Homologous and analogous organs.
Q3. How creation of variations in a species promotes survival?
Q4. Which species is likely to have comparatively better chances of survival- the one reproducing asexually or the one reproducing sexually? Give reason to justify your answer.
Q5. How do Mendel's experiments show that traits are inherited independently? Why he selected pea plant?
Q6. List two visible traits of garden pea in Mendel experiments. Show that traits may be dominant or recessive.
Q7. How the sex of the child is determined in human beings?
Q8. Evolution cannot be equated with the progress. Justify this statement.
Q9. What are fossils? Describe briefly two methods of determining the age of fossils.

**Chapter-10 Light – Reflection and Refraction**
Q1. Explain the laws of reflection and refraction.
Q2. Define refractive index, centre of curvature, focal length, optical centre, pole, principal axis and aperture.
Q3. Draw a ray diagrams for the followings:
   (a) For concave mirror: object beyond C, object between P&F, object at infinity.
   (b) For convex lens: object beyond C, object between C&F, object at F.
Q4. At what distance from a concave lens of focal length 20 cm, should a 6 cm tall object be placed, so that it forms an image at 15 cm from the lens? Also, determine the size of the image formed.
Q5. An object 4 cm in height, is placed at 15 cm in front of a concave mirror of focal length 10 cm. At what distance from the mirror should a screen be placed to obtain a sharp image of the object? Calculate the height of the image.

**Chapter-11 Human Eye and Colorful World**
Q1. Explain the three defects of vision with their causes and correction?
Q2. Define the following terms: astigmatism, presbyopia, dispersion of light, scattering of light, accommodation of eye and atmospheric refraction.
Q3. Give reasons:
   (a) Twinkling of stars.
   (b) Formation of rainbow.
   (c) Blue colour of sky.
   (d) Early sunrise and delayed sunset.
Q4. The near point of a hypermetropic eye is 60 cm. Find the nature and power of corrective lens required to enable him to read a book placed at 25 cm from the eye.
Q5. Give the function for iris, cornea, pupil and retina.

**Chapter-12 Electricity**
Q1. Define resistance, resistivity and Ohm’s law.
Q2. What are the advantages of connecting electrical appliances in parallel instead of series in a circuit?
Q3. Explain the following:
(a) Why is tungsten used for filament of electric lamps?
(b) Why are alloys used in heating devices rather than pure metal?

Q4. A resistance wire of 4 Ω resistance is doubled on itself. Calculate the new resistance of the wire.
Q5. Write Joule’s law of heating.
Q6. List the factors on which resistance and resistivity of a conductor depend on.

Chapter—13 Magnetic Effects of Electric Current

Q1. State the following rules:
   (a) Flemming’s right hand rule.
   (b) Flemming’s left hand rule.
   (c) Maxwell’s right hand rule.

Q2. Give the principle of electric motor and generator.
Q3. Differentiate between:
   (a) Alternating current & direct current.
   (b) Bar magnet & temporary magnet.

Q4. Define solenoid electromagnet, commutator, slip rings, overloading and short-circuiting.
Q5. Explain the functions of the following parts of an electric motor:
   (a) Armature
   (b) Brushes
   (c) Split ring.

Chapter—14 Sources of Energy

Q1. Differentiate between conventional & non-conventional sources of energy.
Q2. What are the limitations of tidal energy, geothermal & solar energy?
Q3. What are the characteristics of a good fuel?
Q4. Justify the statement, “hydrogen is a cleaner and better fuel than CNG”.
Q5. Write the energy conversion that takes place in a hydropower plant.
Q6. What is a dam? Why do we seek to build large dams? While building large dams, which three main problems should particularly be addressed to maintain peace among local people? Mention them.
Q7. Name any two elements that are used in fabricating solar cells.
Q8. Name the component of sunlight which facilitates drying of wheat after harvesting.
Q9. List two merits of solar cells.

Chapter—15 Our Environment

Q1. Define the following terms: food chain, food web and biological magnification.
Q2. In the following food chain 100 J of energy is available to lion. How much energy will be available to the producer? Plant → deer → lion
Q3. What is ozone? What are the causes of ozone depletion? How is ozone formed in the upper atmosphere? Write harmful effects of ozone depletion.
Q4. Natural water bodies are not regularly cleaned whereas an aquarium needs regular cleaning. Why?
Q5. What are decomposers? What will be the consequence if the decomposers are completely eradicated from an ecosystem? Give justification in support of your answer.

Chapter—16 Management of Natural Resources

Q1. What is sustainable development?
Q2. Why there is a need to conserve forests and wildlife?
Q3. Who are stakeholders? Explain their role in conserving wildlife
Q4. What is biodiversity? Why are forests considered as biodiversity hot spot? List two factors responsible for causing deforestation.
Q5. What is exploitation of resources with short term aims? List its four advantages.
Q6. List three roles of forests in conserving the environment. How do the forests get depleted? State two consequences of deforestation on the environment.