Chapter-1 Matter in Our Surroundings
Q1. Define the following terms: sublimation, evaporation, latent heat of vaporization and latent heat of fusion.
Q2. Name the factors affecting evaporation.
Q3. (a) Convert (i) 293K (ii) 470K into Celsius.
   (b) Convert (i) 25°C (ii) 373°C into Kelvin.
Q4. Give reasons:
   (a) A gas exerts pressure on the walls of the container.
   (b) Water kept in an earthen pot become cool during summer.
Q5. Which gas is called dry ice? Why?
Q6. "Osmosis is a special kind of diffusion". Comment.

Chapter-2 Is Matter Around us Pure
Q1. Differentiate between:
   (a) Homogenous and heterogenous mixtures.
   (b) Saturated and unsaturated solution.
   (c) Mixtures and compound
Q2. How is heating of sugar and heating of ammonium chloride different from each other? Explain.
Q3. What is distillation? Give its principle.
Q4. Name the separation techniques by which we can obtain colored components from ink. Give two more applications of this technique.
Q5. Why does the solution of sodium chloride not show “Tyndall effect” whereas the mixture of water and milk shows?
Q6. To make a saturated solution, 36g of sodium chloride is dissolved in 100g of water at 293K. Find its concentration at this temperature.

Chapter-3 Atoms and Molecules
Q1. Explain the following: Law of conservation of mass, law of definite proportion and Dalton’s postulates.
Q2. Write the chemical formulae for the following:
   (a) Sodium carbonate
   (b) Ammonium sulphate
Q3. Calculate the formula mass unit of CH₃OH, H₂SO₄ and CaCO₃.
Q4. Calculate (i) the mass of 3.011x10²⁴ atoms of carbon and (ii) 0.5 mole of hydrogen gas.
Q5. Define mole. Calculate the number of moles in 22g of carbon dioxide.
Q6. (a) Define Avogadro number.
   (b) Calculate the number of molecules present in 100 g water.

Chapter-4 Structure of the Atom
Q1. What are the limitations of J.J Thomson and Rutherford’s model of an atom?
Q2. Describe postulates proposed by Bohr’s model of an atom.
Q3. Na\(^+\) has completely filled k and L shells. Explain.
Q4. What are isotopes and isobars? Explain with examples.
Q5. If an element M has mass number 27 and atomic number 13, how many neutrons does it contain?
Q6. An element X forms an oxide X\(_2\)O\(_3\). State the valency of X and give the formula of its chloride.

**Chapter - 5 The Fundamental Unit of Life**

Q1. Why cell is called a structural and functional unit of life?
Q2. Give Reasons:
   (a) Mitochondria are called powerhouse of the cell.
   (b) Lysosomes are known as suicidal bags.
   (c) Chloroplasts are known as kitchen of the cell in the plant cell.
Q3. Differentiate between:
   (a) Cell wall and Plasma Membrane
   (b) Prokaryotes and Eukaryotes
   (c) Plant cell and Animal cell
Q4. Why plasma membrane is also known as selectively permeable membrane?

**Chapter - 6 Tissues**

Q1. Differentiate between permanent tissue and meristematic tissues.
Q2. Define connective tissues. Write down their functions.
Q3. What is neuron? Explain with the help of a diagram.
Q4. What are tissues? Give importance of tissues.
Q5. Describe the composition and functions of human blood.
Q6. What is muscular tissue? Describe structure and functions of striated muscle fibre.

**Chapter - 7 Diversity in Living Organisms**

Q1. On what basis do we need to classify the organisms?
Q2. Differentiate between:
   (a) Angiosperm and Gymnosperms.
   (b) Amphibians and Reptiles.
   (c) Annelids and Arthropods.
Q3. What are the major divisions in the kingdom plantae? What is the basis of these divisions?
Q4. Mention three characteristics of phylum “chordata”.
Q5. What is symbiotic relationship? “Give examples.
   (a) What is the scientific name of humans?
   (b) To which class of vertebrates does it belong?
   (c) Mention any two characteristic features of this group.

**Chapter - 8 Motion**

Q1. Derive three equations of motion graphically.
Q2. A girl while riding a bicycle moves with the speed of 10 km/hr for 2 h and with the speed of 15 km/h for the next 3 h. Find the total distance moved by her and her average speed.
Q3. A train 100 m long is to cross a river bridge of length 800 m. What time will it take to cross the bridge? Given that the train moves with a constant velocity of 36 km/h.
Q4. Shatabdi Express starting from rest attains a velocity of 108Km/h in 2min. Assuming the acceleration to be uniform, find the value of (i) acceleration (ii) the distance travel by the train for attaining this velocity.

Q5. Which of the two decides the direction of motion of an object: its velocity or the acceleration acting on it? Explain by giving an example.

Q6. On a 120km track a train travels the first 30km at a uniform speed of 30km/h. calculate the speed with which the train should move the rest of the track so as to get the average speed of 60km/h for the entire track.

Chapter-9 Force and Laws of Motion

Q1. A hammer of mass 500g, moving at 50m/s, strikes a nail. The nail stops the hammer in a very short time of 0.01s. What is the force of the nail on the hammer?

Q2. Why the foot of a man is is injured when he hits a stone?

Q3. Fastening of seat belts is advised for the safety of persons sitting in a moving car. Give reason.

Q4. State Newton’s all three laws of motion. Give one example of each.

Q5. A bullet of mass 25g moving with a speed of 200m/s is stopped within 5cm of the target. What is the averages resistance force offered by the target?

Q6. How can the law of conservation of momentum give an expression for the recoil velocity of a gun?

Chapter-10 Gravitation

Q1. Give reason:
   (a) Cutting and piercing tools are made sharp.
   (b) An egg sinks in fresh water but floats in highly salty water.

Q2. An object is thrown vertically upwards and rises to a height of 10m. Calculate the velocity with which the object was thrown upwards, and the time taken by the object to reach the highest point.

Q3. Define relative density. Write its unit. Density of silver is $10.8 \times 10^3$ Kg/m$^3$. Calculate the relative density of silver if the density of water is 1000kg/m$^3$.

Q4. What is Archimedes’ principle? Explain the reason that cork floats in the water whereas iron nail sinks.

Q5. Two objects of masses $m_1$ and $m_2$, when separated by a distance $d$, experts a force $F$ on each other. What happens when?
   (a) mass of first object is doubled.
   (b) masses of both objects are doubled.
   (c) masses are brought closer so that distance between them becomes $d/2$.
   (d) The space between the two objects has no air and it is complete vacuum.

Chapter-11 Work and Energy

Q1. Give two illustrations for the principle of transformation of energy.

Q2. An electric pump is used to pump water from a pump to the overhead tank situated 20m above. It transfers 2000kg of water to overhead tank in 15 min. Calculate the power of pump.

Q3. A car weighing 1200kg is uniformly accelerated from rest and covers a distance of 40m in 5s. Calculate the work done by the engine of car during this time. What is the final kinetic energy of car?

Q4. Define power. Derive its SI unit. An electric bulb is rated 10W. What does it mean? What is the energy consumed in joules if it is used for 5 min?
Q5. Define commercial unit of energy. Derive relationship between this unit of energy and SI unit of energy. An electrical device of 500W is used daily in a household for 10 h. Calculate the energy consumed in the month of April.

Q6. (a) Derive an expression to calculate the Kinetic energy of a body. 
(b) An object of mass 10kg is raised to a height of 10m above the ground. What is its potential energy? 
(c) If the object is allowed to fall, find its kinetic energy when it is half way down.

Chapter-12 Sound
Q1. Flash and thunder are produced simultaneously. But thunder is heard a few seconds after the flash is seen, why?
Q2. Why are ceilings of concert halls and conference halls made curved? Explain by giving a diagram.
Q3. Distinguish between echo and reverberation of sound.
Q4. Draw labeled diagram of auditory parts of human ear and explain how the human ear works.
Q5. (a) Give three medical uses of ultrasound. 
(b) A ship which is stationary is at a distance of 2800m from the sea bed. This ship sends an ultrasound signal to the seabed and its echo is heard after 4s. Find the speed of sound in water.

Chapter-13 Why do we fall ill?
Q1. Why is AIDS considered to be a syndrome not a disease?
Q2. Explain why antibiotics does not work against virus, but work against bacteria?
Q3. Define: Immunization and Vaccination.
Q4. What are the different means of spread of infectious diseases?
Q5. "Prevention is better than cure". Explain.
Q6. Differentiate between healthy and disease free person.

Chapter-14 Natural Resources
Q1. How does atmosphere act as a blanket?
Q2. What do you mean “Global Warming”? State the causes and effects of it.
Q3. What is Ozone shield? What would be the effect of Ozone depletion?
Q5. Why step farming is common in hills?

Chapter-15 Improvement in Food Resources
Q1. Explain the different patterns and advantages of crop farming.
Q2. What factors will be responsible for losses of grains during storage?
Q3. Discuss two ways of incorporating desirable characteristics into crop variety.
Q4. What is the difference between broilers and layers?
Q5. Compare the uses of manures and fertilizers in maintaining soil fertility.
Q6. What are the advantages of composite fish culture?