

Chemistry Question Paper

Section A — Short & Definition Questions

1. Write three differences between Analytical and Physical Chemistry.
2. Write three differences between Atom and Ion.
3. Write three differences between Compound and Mixture.
4. Define:
 - Gram Formula Mass
 - Free Radical
 - Avogadro Number (with symbol)
 - Empirical Formula
 - Molecular Formula
5. Define:
 - Ionization Energy
 - Electron Affinity
 - Electronegativity
6. Define isotopes. Give any three applications of isotopes in daily life.
7. Give the statements of:
 - Modern Periodic Law
 - Mendeleev's Periodic Law
 - Dobereiner's Law of Triads

Section B — Long / Descriptive Questions

8. Describe the discovery of cathode rays through the discharge tube experiment with a labeled diagram. Also write down the properties of cathode rays.
9. What is a period? How many periods are there in the modern periodic table? Describe them. Also determine the demarcation of the periodic table into s, p, d and f blocks.
10. Define chemistry. Write the names of three branches of chemistry and describe any five branches.

Section C — Chemical Equations, Formulas & Atomic Structure

Q.13) Balance the following chemical equations:

- a) $\text{H}_2 + \text{O}_2 \rightarrow \text{H}_2\text{O}$
- b) $\text{N}_2 + \text{H}_2 \rightarrow \text{NH}_3$
- c) $\text{KClO}_3 \rightarrow \text{KCl} + \text{O}_2$
- d) $\text{NH}_3 + \text{O}_2 \rightarrow \text{NO} + \text{H}_2\text{O}$
- e) $\text{NaHCO}_3 \rightarrow \text{Na}_2\text{CO}_3 + \text{H}_2\text{O} + \text{CO}_2$

Q.16)

(a) Write down the empirical and molecular formula for:

- Glucose
- Hydrogen peroxide
- Benzene

(b) Write the chemical formulae for:

- Sodium carbonate
- Sodium bicarbonate
- Caustic soda
- Sulfuric acid
- Sugar
- Glucose

Q.17) Find the number of protons, neutrons and electrons present in the following isotopes:

a) Fe with $Z = 26$, $A = 56$

b) O with $Z = 8$, $A = 17$

c) U with $Z = 92$, $A = 235$

d) C with $Z = 6$, $A = 14$

Instructions to Candidates

- Attempt all questions.
- Show all working where applicable.
- Diagrams should be neat and labeled.
- Write answers clearly.