

CHEMISTRY

- The paper is made up of compulsory structured questions.
- Several questions are designed to test the way you can apply your knowledge and understanding of chemistry in new situations.
- **You will not have covered all the topics in these questions but you should be able to answer them from the information given.**
- *Knowledge of the following content will be assumed:*

Physical Chemistry

- Atomic structure including the nature of protons, neutrons and electrons; atomic (proton) number, mass number and relative atomic mass; isotopes; electron arrangement and its relation to reactivity and the periodic table.
- Bonding and structure including the nature of covalent, ionic and metallic bonding; cross-dot diagrams; metallic, giant covalent, giant ionic and simple molecular structures and their physical properties.
- Rates of reaction and collision theory.
- Calculations involving relative formula mass, empirical formulae, reacting masses and atom economy.

Inorganic Chemistry

- The nature and reactivity of elements in groups 1, 7, 0 and the transition metals; trends in reactivity in groups 1 and 7.
- Balanced symbol equations.
- Acid/base, neutralisation and thermal decomposition reactions.
- The uses of materials and the relationship between properties and use.

Organic Chemistry

- The extraction, fractional distillation and cracking of crude oil. The nature of alkanes and alkenes.
- Simple addition reactions of alkenes including their reaction with bromine and polymerisation.

How Science Works

- The analysis and interpretation of data.
- An understanding of the investigative process.

L SYMS

Head of Chemistry