Chemistry Portions for First Term Examination – Jan, 2023

Year 9 – Year 13

Year 9

SC1-States of matter

SC1a -States of matter

SC2-Methods of separating and purifying substances

SC2a – Mixtures

SC2b – Filtration and crystallization

SC2c – Paper chromatography

SC2d – Distillation

SC2e – Drinking water

SC3-Atomic Structure

SC3a – Structure of atom

SC3b – Atomic number and mass number

SC3c - Isotopes

SC4-The Periodic Table

SC4a –Elements and the periodic table

SC4b- Atomic number and the periodic table

SC4c- Electronic configurations and periodic table

SC5-Ionic Bonding

SC5a –Ionic Bonds

SC5b- Ionic lattice

SC5c- Properties of ionic compounds

Year 10

SC1-States of matter

SC1a -States of matter

SC2-Methods of separating and purifying substances

SC2a – Mixtures

SC2b – Filtration and crystallization

SC2c – Paper chromatography

SC2d – Distillation

SC2e – Drinking water

SC3-Atomic Structure

SC3a – Structure of atom

SC3b – Atomic number and mass number

SC3c - Isotopes

SC4-The Periodic Table

SC4a –Elements and the periodic table

SC4b- Atomic number and the periodic table

SC4c- Electronic configurations and periodic table

SC5-Ionic Bonding

SC5a – Ionic bonds

SC5b – Ionic lattices

SC5c- Properties of ionic compounds

SC6-Covalent Bonding

SC6a – Covalent bonds

SC7-Types of Substance

SC7a – Molecular compounds

SC7b- Allotropes of carbon

SC7c – Properties of metals

SC7d – Bonding models

SC8-Acids and alkalis

SC8a – Acids, alkalis and indicators

SC8b – Looking at acids

SC8c – Bases and salts

SC8d – Alkalis and balancing equations

SC8e – Alkalis and neutralization

SC8f – Reactions of acids with metals and carbonates

SC8g - Solubility

SC9 – Calculations Involving Masses

SC9a-Masses and empirical formulae

SC9b-Conservation of mass

SC9c – Moles

SC10 – Electrolytic Processes

SC10a - Electrolysis

SC10b – Products from electrolysis

SC11 – Obtaining and using metals

SC11a – Reactivity

SC11b – Ores

SC11c – Oxidation and reduction

Year 11

Paper 1

SC1-States of matter

SC1a -States of matter

SC2-Methods of separating and purifying substances

SC2a – Mixtures

SC2b – Filtration and crystallization

SC2c – Paper chromatography

SC2d – Distillation

SC2e – Drinking water

SC3-Atomic structure

SC3a – Structure of atom

SC3b – Atomic number and mass number

SC3c - Isotopes

SC4-The periodic table

SC4a –Elements and the periodic table

SC4b- Atomic number and the periodic table

SC4c- Electronic configurations and periodic table

SC5-Ionic Bonding

SC5a – Ionic bonds

SC5b – Ionic lattices

SC5c- Properties of ionic compounds

SC6-Covalent Bonding

SC6a – Covalent bonds

SC7-Types of Substance

SC7a – Molecular compounds

SC7b- Allotropes of carbon

SC7c – Properties of metals

SC7d – Bonding models

SC8-Acids and alkalis

SC8a – Acids, alkalis and indicators

SC8b – Looking at acids

SC8c – Bases and salts

SC8d – Alkalis and balancing equations

SC8e – Alkalis and neutralization

SC8f – Reactions of acids with metals and carbonates

SC8g - Solubility

SC9 – Calculations involving masses

SC9a-Masses and empirical formulae

SC9b-Conservation of mass

SC9c – Moles

SC10 – Electrolytic Processes

SC10a - Electrolysis

SC10b – Products from electrolysis

SC11 – Obtaining and using metals

SC11a – Reactivity

SC11b – Ores

SC11c – Oxidation and reduction

SC11d – Life cycle Assessment and recycling

SC13 – Transition metals, Alloys and Corrosion

SC13a – Transition metals

SC13b – Corrosion

SC13c – Electroplating

SC13d – Alloying

SC13e – Uses of metals and their alloys

SC14 – Quantitative Analysis

SC14a – Yields

SC14b –Atom economy

SC14c – Concentrations

SC14d – Titrations and calculations

SC14e – Molar volume of gases

Paper 2

SC3-Atomic structure

SC3a – Structure of atom

SC3b – Atomic number and mass number

SC3c - Isotopes

SC4-The periodic table

SC4 a –Elements and the periodic table

SC4b- Atomic number and the periodic table

SC4c- Electronic configurations and periodic table

SC5-Ionic Bonding

SC5a – Ionic bonds

SC5b – Ionic lattices

SC5c- Properties of ionic compounds

SC6-Covalent Bonding

SC6a – Covalent bonds

SC7-Types of Substance

SC7a – Molecular compounds

SC7b- Allotropes of carbon

SC7c – Properties of metals

SC7d – Bonding models

SC9 – Calculations involving masses

SC9a-Masses and empirical formulae

SC9b-Conservation of mass

SC9c – Moles

SC18 – Rates

SC18a – Rates of reaction

SC18b- Factors affecting reaction rates

SC18c – Catalysts and activation energy

SC20 – Fuels

SC20a – Hydrocarbons in crude oil and natural gas

SC20b – Fractional distillation of crude oil

SC20c – The alkane homologous series

SC20d – Complete and incomplete combustion

eSC20e – Combustible fuels and pollution

SC20f – Breaking down hydrocarbons

SC21 – Earth and Atmospheric science

SC21a – The early atmosphere

SC21b – The changing atmosphere

SC21c – The atmosphere today

SC21d – Climate change

SC22 – Hydrocarbons

SC22a – Alkanes and alkenes

SC22b – Reactions of alkane and alkenes

SC23 – Alcohol and carboxylic acids

SC2a – Ethanol production

SC23b – Alcohol

SC23C – Carboxylic acid

SC24 – Polymers

SC24a – Addition polymerisation

SC24b – Polymer Properties and uses

SC24c – Condensation polymerisation

SC24d – Problems with polymers

SC25 – Qualitative Analysis

SC25a – Flame tests and photometry

SC25b – Tests for positive ions

SC25c- Tests for negative ions

SC26 – Bulk and surface properties of matter

SC26a – Choosing materials
SC26b- Composite materials
SC26c – Nanoparticles

Year 12

TOPIC 1 - Atomic structure and the Periodic Table

1.1 Atomic structure

1.2 The Periodic Table

TOPIC 2 - Chemical Bonding and structure

2.1 Giant Structures

2.2 Discrete Molecules

2.3 Physical properties related to structure and bonding.

TOPIC 3 - Redox Reactions

3.1 – Oxidation and reduction in terms of electrons

3.2 – Oxidizing agents and reducing agents

TOPIC 4- Inorganic chemistry and the periodic table

4.2 – Group 2

TOPIC 5- Formulae, equation and amount of substance

5.1- Empirical and molecular formulae

5.2- Amount of substance

5.3- Equations and calculations

5.4- Errors and Uncertainties

5.5- Yield and atom economy

5.6- Types of reaction

TOPIC 6-Organic chemistry

6.1 – Introduction to organic chemistry

TOPIC 7-Hydrocarbons

1 Alkanes from crude oil

2 Alkanes as fuels

3 Alternative fuels

4 Substitution reactions of alkanes

5 Alkenes and their bonding.

Page 178 to 187

Year 13

Paper 1

TOPIC 1-Atomic structure and the periodic table

1.1 Atomic structure

1.2 The Periodic Table

TOPIC 2-Chemical bonding and structure

2.1 Giant Structures

2.2 Discrete Molecules

2.3 Physical properties related to structure and bonding.

TOPIC 3-Redox reactions

3.1 – Oxidation and reduction in terms of electrons

3.2 – oxidizing agents and reducing agents

TOPIC 4-Inorganic chemistry and the periodic table

4.1 – Group 2

4.2 – Group 7

TOPIC 5-Formulae, equations and amounts of substance

5.1 – Empirical and molecular formula

5.2 – Amount of substance

5.3 – Equations and calculations

5.4 – Errors and uncertainties

5.5 – Yield and atom economy

5.6 – Types of reaction

TOPIC 6-Organic chemistry

6.1 – Introduction to organic chemistry

6.2 – Hydrocarbons

6.3 – Halogenoalkanes

6.4 - Alcohols

TOPIC 7-Modern analytical techniques

7.1 – Mass spectrometry

7.2 – Infrared spectroscopy

TOPIC 8-Chemical energetics

8.1- Heat energy and Enthalpy

8.2 Bond Enthalpy

TOPIC 9-Reaction kinetics

9.1 – Reaction rate

TOPIC 10-Chemical equilibrium

10.1 – Reversible reactions and dynamic equilibrium

10.2 – Equilibrium position

Paper 2

TOPIC 11 - Further equilibrium

11.1 – Chemical equilibrium

TOPIC 12 - Acid - base equilibria

12.1 – Strong and weak acids

12.2- Acid – Base titrations

TOPIC 14 - Further Redox

14.1 – Standard electrode potential

14.2 – Redox in action

TOPIC 15 – Transition metals

15.1 – Principles of transition metal chemistry

15.2 – Transition metal reactions

15.3 – Transition metals as catalysts

TOPIC 16 - Further Kinetics

16.1 – Further kinetics

TOPIC 17 - Further organic chemistry

17.1 Chirality

17.2 Carbonyl compounds

17.3 Carboxylic acids

17.4 Arenes-benzene

17.5 Amines, Amide, Amino acids and proteins.