

FORM III CHEMISTRY SUMMER REVISION

STATES OF MATTER

- Interconversion between the 3 states of matter
- Application of kinetic theory to changes of state
- Diffusion
- Physical and chemical changes
- Mixtures and compounds
- Separation techniques – filtration, crystallization, distillation, fractional distillation chromatography, sublimation, separating funnel
- Heating and cooling curves

Revision examples from Chemistry SEC past papers

May 2010 Paper 1 No 3

May 2011 Paper 1 No 1

May 2012 Paper 2A No 1 and 12

May 2013 Paper 2A No 1

***May 2014 Paper 1 No 11a and b
 Paper 2A No 1 and 3***

***May 2015 Paper 1 No 1 and 12
 Paper 2A No 1***

May 2016 Paper 2A No 1

THE ATOM

Structure of atom – protons, neutrons and electrons
Atomic number
Mass Number
Electronic configuration
Ions
Isotopes
Allotropy
Symbols of elements/radicals
Valencies of elements/radicals
Balancing equations
State symbols

Bonding - (a) Ionic bonding eg Sodium Chloride

(b) Covalent bonding

- Simple molecular
H₂, Cl₂, O₂, N₂, HCl, H₂O, NH₃, CH₄ and CO₂
- Giant molecular
Diamond and graphite

(c) Metallic bonding – metals

Characteristics of the different types of bonding, explained in terms of the bonding model

Revision examples from Chemistry SEC past papers

May 2010	<i>Paper 1 No 1 and 5 Paper 2A No 1 and 6</i>
May 2011	<i>Paper 1 No 6 and 10 Paper 2A No 1, 4a and 6</i>
May 2012	<i>Paper 1 No 9 Paper 2A No 3</i>
May 2013	<i>Paper 1 No 2, 4</i>
May 2014	<i>Paper 1 No 6</i>
May 2015	<i>Paper 1 No 2</i>
May 2016	<i>Paper 1 No 2 and 9</i>

AIR

Composition – nitrogen, oxygen, water vapour, carbon dioxide and noble gases

Experimental determination of the percentage composition by volume of nitrogen and oxygen in air

Combustion – Reaction of Magnesium, Copper, Carbon and Sulfur with oxygen in air.

Products of combustion of hydrocarbons

Test for the presence of water and carbon dioxide

Rusting

Air pollution
Greenhouse effect
Ozone layer

OXYGEN

Properties of oxygen

Test for oxygen

Preparation of oxygen (and dry oxygen) in the lab

Preparation of oxygen in industry

Types of oxides – basic, acidic, amphoteric and neutral

Revision examples from Chemistry SEC past papers

<i>May 2010</i>	<i>Paper 1 No 10</i>
<i>May 2011</i>	<i>Paper 1 No 9</i> <i>Paper 2A No 10</i>
<i>May 2013</i>	<i>Paper 1 No 6</i> <i>Paper 2A No 2 and 14</i>
<i>May 2014</i>	<i>Paper 2A No 2</i>
<i>May 2015</i>	<i>Paper 2A No 2, 9 and 11</i>
<i>May 2016</i>	<i>Paper 1 No 5</i> <i>Paper 2A No 3</i>

HYDROGEN

Properties of hydrogen

Uses of hydrogen

Preparation of hydrogen in the lab

Reactivity series

Revision examples from Chemistry SEC past papers

May 2010	Paper 1 No 6
May 2011	Paper 2A No 8
May 2013	Paper 1 No 10

ACIDS AND BASES

What is an acid?
What is a base/alkali?
Strong/weak acids
Strong/weak bases
Basicity of an acid
Properties of acids
Properties of bases
pH scale
Indicators
Normal salts/acid salts
Preparation of salts
Solutions of HCl in water/methylbenzene
Preparation of a standard solution
Acid/alkali titrations and related calculations

Revision examples from Chemistry SEC past papers

May 2010	Paper 1 No 9 and 12
May 2011	Paper 1 No 2 Paper 2A No 5
May 2012	Paper 1 No 4 Paper 2A No 12
May 2013	Paper 1 No 7, 8
May 2014	Paper 1 No 4 and 5
May 2016	Paper 1 No 4

Some useful websites include:

www.bbc.co.uk/schools/gcsebitesize/chemistry
www.gcsescience.com/q.htm
www.s-cool.co.uk/gcse/chemistry
www.docbrown.info/page05/page05.htm#8