

## **Chemistry (Separates) Paper 1 – 20 minute tasks**

### ***Chemistry Unit 1 – Atomic Structure and the Periodic Table***

#### **Task 1**

Using the link or the revision guide, explain the background of the periodic table. Make sure to include the following:

- Who came up with our modern periodic table? How did he do this?
- How is the periodic table arranged today?
- The names of the different groups of the periodic table.
- The impact of isotopes on the table.

Use this link to help (read all the pages): <https://www.bbc.com/bitesize/guides/zg923k7/revision/1>

#### **Task 2**

Using the link or the revision guide, define the following terms:

- Atom
- Molecule
- Compound
- Mixture
- Diatomic molecule
- Reactant
- Product
- State symbol
- Conservation of mass

Use this link to help (read all the pages): <https://www.bbc.com/bitesize/guides/zg2h4qt/revision/1>

### ***Chemistry Unit 2 – Bonding, Structure and the Properties of Matter***

#### **Task 1**

Explain what nanoscience is and why it is so important. Make sure to include the following:

- What is meant by a nanoparticle
- The size of nano
- Everyday applications of nanoparticles
- The importance of surface area to volume ratio.

Use this link to help: <https://www.bbc.com/bitesize/guides/z8m8pbk/revision/1>

#### **Task 2**

Draw a dot and cross diagram to represent the covalent bonding in the following molecules: Cl<sub>2</sub>, NH<sub>3</sub>, CH<sub>4</sub>, H<sub>2</sub>O, CH<sub>4</sub>. Explain why simple covalent compounds have low melting and boiling points.

Use this link to help: <https://www.bbc.com/bitesize/guides/zcpjfcw/revision/1>

### **Chemistry Unit 3 – Quantitative Chemistry**

#### Task 1

Explain what is meant by 'atom economy' and why a company needs to spend time measuring the atom economy of a reaction. Be sure to include the equation that is used to calculate it.

Write a balanced symbol equation for the production of sodium chloride from sodium hydroxide and hydrochloric acid and then calculate the atom economy of the reaction.

Use this link to help: <https://www.bbc.com/bitesize/guides/z8wkh39/revision/1>

#### Task 2

Write out the equations for the following, showing different rearrangements of each:

- Moles
- Concentration g/dm<sup>3</sup>
- Concentration mol/dm<sup>3</sup>
- Gas equation
- Percentage yield
- Atom Economy

### **Unit 4 – Chemical Changes**

#### Task 1

Explain how to carry out a titration in detail including all the equipment, chosen indicator and calculations you would do.

Use the following links to help (read all the pages):

<https://www.bbc.com/bitesize/guides/zx98pbk/revision/1>

#### Task 2

Write half equations (for the anode and cathode) for when the following solutions undergo electrolysis:

- Sodium chloride
- Copper sulfate
- Magnesium oxide
- Copper chloride

### **Unit 5 – Energy Changes**

#### Task 1

Draw a reaction profile diagram for an endothermic reaction. Add labels the reactants, the products, the activation energy and the overall energy changes. Then do the same for an exothermic reaction. Explain what the difference is between endothermic and exothermic reactions, use your diagrams to help you.

Use this link to help: <https://www.bbc.com/bitesize/guides/zwfr2nb/revision/1>

## Task 2

Compare chemical cells to fuel cells. Explain how they are different and the advantages and disadvantages of using one over the other.

With the example of a fuel cell being a hydrogen-oxygen fuel cell, write half equations for what happens within the cell. Give some examples of where fuel cells can be used.

Use this link to help: <https://www.bbc.com/bitesize/guides/z2b2k2p/revision/2>