

Paper	Topic	Q No.	Question
Chem 1	C1: Atomic structure	C1.1	What the difference between a mixture and a molecule?
Chem 1	C1: Atomic structure	C1.2	A Hydrogen atom has the chemical symbol ${}^1_1\text{H}$. How many electrons has it got?
Chem 1	C1: Atomic structure	C1.3	What is an isotope?
Chem 1	C1: Atomic structure	C1.4	Which separation technique would you use to get a soluble solid from a liquid e.g. salt from water?
Chem 1	C1: Atomic structure	C1.5	What is a molecule?
Chem 1	C1: Atomic structure	C1.6	What is the mass and charge of an electron?
Chem 1	C1: Atomic structure	C1.7	What are the rows of the periodic table called?
Chem 1	C1: Atomic structure	C1.8	What is the mass and charge of a proton?
Chem 1	C1: Atomic structure	C1.9	What are the columns of the periodic table called?
Chem 1	C1: Atomic structure	C1.10	What is an ion?
Chem 1	C1: Atomic structure	C1.11	How many electrons can the inner electron shell hold?
Chem 1	C1: Atomic structure	C1.12	What is a compound?
Chem 1	C1: Atomic structure	C1.13	What is an atom?
Chem 1	C1: Atomic structure	C1.14	Draw and label a nuclear atom?
Chem 1	C1: Atomic structure	C1.15	Which separation technique would you use to get an insoluble solid from a liquid e.g. sand from water?
Chem 1	C1: Atomic structure	C1.16	Which separation technique would you use to separate a mixture of different coloured compounds?
Chem 1	C1: Atomic structure	C1.17	How many electrons can the second electron shell hold?
Chem 1	C1: Atomic structure	C1.18	A Sodium atom has the chemical symbol ${}^{23}_{11}\text{Na}$. How many neutrons has it got?
Chem 1	C1: Atomic structure	C1.19	What is the mass and charge of a neutron?
Chem 1	C1: Atomic structure	C1.20	A Fluorine atom has the chemical symbol ${}^{19}_9\text{F}$. How many protons has it got?
Chem 1	C1: Atomic structure	C1.21	What sub-atomic particles are found in the nucleus of an atom?
Chem 1	C1: Atomic structure	C1.22	What is the law of conservation of mass?
Chem 1	C1: Atomic structure	C1.23	What is an element?
Chem 1	C1: Atomic structure	C1.24	Draw a label the plum pudding model of the atom
Chem 1	C1: Atomic structure	C1.25	Which separation technique would you use to separate a liquid from a mixture of liquids?
Chem 1	C2: The periodic table	C2.1	A Hydrogen atom has the chemical symbol ${}^1_1\text{H}$. How many electrons has it got?
Chem 1	C2: The periodic table	C2.2	What do alkali metals make when they react with oxygen?
Chem 1	C2: The periodic table	C2.3	What do alkali metals make when they react with chlorine?
Chem 1	C2: The periodic table	C2.4	What is an ion?
Chem 1	C2: The periodic table	C2.5	How many atoms are there in CaCO_3 ?
Chem 1	C2: The periodic table	C2.6	What are the rows of the periodic table called?
Chem 1	C2: The periodic table	C2.7	What charge ions do most non-metals make and why?
Chem 1	C2: The periodic table	C2.8	What does the group number for an element tell you about the electron configuration for an atom of that element?
Chem 1	C2: The periodic table	C2.9	What is special about the atomic structure of non-metals?
Chem 1	C2: The periodic table	C2.10	In which group would you find the halogens?
Chem 1	C2: The periodic table	C2.11	What charge ions do metals always make and why?
Chem 1	C2: The periodic table	C2.12	Sodium is more reactive than helium. What does this mean?
Chem 1	C2: The periodic table	C2.13	Name the elements in CaCO_3
Chem 1	C2: The periodic table	C2.14	What are the columns of the periodic table called?
Chem 1	C2: The periodic table	C2.15	A Sodium atom has the chemical symbol ${}^{23}_{11}\text{Na}$. How many neutrons has it got?
Chem 1	C2: The periodic table	C2.16	What is special about the atomic structure of metals?
Chem 1	C2: The periodic table	C2.17	Are there more metals or non-metal elements?
Chem 1	C2: The periodic table	C2.18	What do alkali metals make when they react with water?
Chem 1	C2: The periodic table	C2.19	What does the periodic table period number of an element tell you?
Chem 1	C2: The periodic table	C2.20	In which group would you find the alkali metals?
Chem 1	C2: The periodic table	C2.21	A Fluorine atom has the chemical symbol ${}^{19}_9\text{F}$. How many protons has it got?
Chem 1	C2: The periodic table	C2.22	In which group would you find the noble gases?
Chem 1	C2: The periodic table	C2.23	Is CaCO_3 a compound, an element, a mixture or a combination of all three?
Chem 1	C2: The periodic table	C2.24	What happens to their reactivity as you go down the group?
Chem 1	C2: The periodic table	C2.25	Who developed the Periodic Table by placing elements in order of proton number?
Chem 1	C3: Structure and bonding	C3.1	What is special about graphite?
Chem 1	C3: Structure and bonding	C3.2	What is a polymer?
Chem 1	C3: Structure and bonding	C3.3	What is graphene?
Chem 1	C3: Structure and bonding	C3.4	Draw the particle arrangement of a solid with 9 particles
Chem 1	C3: Structure and bonding	C3.5	Name the three types of chemical bond
Chem 1	C3: Structure and bonding	C3.6	What type of ionic structures have high melting and boiling points?
Chem 1	C3: Structure and bonding	C3.7	Name two examples of giant covalent structures.
Chem 1	C3: Structure and bonding	C3.8	What types of elements are involved in metallic bonding?
Chem 1	C3: Structure and bonding	C3.9	Draw a dot and cross diagram of an O_2 molecule given that Oxygen is in Group 6.
Chem 1	C3: Structure and bonding	C3.10	What is fullerene??
Chem 1	C3: Structure and bonding	C3.11	What types of elements are involved in covalent bonding?
Chem 1	C3: Structure and bonding	C3.12	What happens to electrons during ionic bonding?
Chem 1	C3: Structure and bonding	C3.13	What does the group number for an element tell you about the electron configuration for an atom of that element?
Chem 1	C3: Structure and bonding	C3.14	Draw a dot and cross diagram of $\text{Cl} + \text{Na} \rightarrow \text{NaCl}$. Chlorine is in group 7, Sodium is in group 1.
Chem 1	C3: Structure and bonding	C3.15	Why are metals such good conductors of heat and electricity?
Chem 1	C3: Structure and bonding	C3.16	Draw the particle arrangement of a gas with 9 particles
Chem 1	C3: Structure and bonding	C3.17	What happens to electrons during covalent bonding?
Chem 1	C3: Structure and bonding	C3.18	What are the 4 state symbols used in equations and what does each mean?
Chem 1	C3: Structure and bonding	C3.19	What happens to electrons during metallic bonding?
Chem 1	C3: Structure and bonding	C3.20	What size molecules are usually gases or liquids and generally do not conduct electricity?
Chem 1	C3: Structure and bonding	C3.21	What is an alloy?
Chem 1	C3: Structure and bonding	C3.22	What 2 things do giant covalent structures have in common?
Chem 1	C3: Structure and bonding	C3.23	What types of elements are involved in ionic bonding?
Chem 1	C3: Structure and bonding	C3.24	What sort of chemical bonds does Ammonia NH_3 have?

Chem 1	C3: Structure and bonding	C3.25	Draw the particle arrangement of a liquid with 9 particles
Chem 1	C4: Chemical calculations	C4.1	What is the Relative Formula Mass (M_r) of CaCO_3 ? Where the atoms have the chemical symbols $^{40}_{20}\text{Ca}$, $^{12}_6\text{C}$ and $^{16}_8\text{O}$.
Chem 1	C4: Chemical calculations	C4.2	If you react 24g of Mg with 36g of HCl you make 48g of MgCl. The reactants had a total mass of 50g, where have the other 2g gone?
Chem 1	C4: Chemical calculations	C4.3	What does concentration of a solute mean?
Chem 1	C4: Chemical calculations	C4.4	How many moles of $^{12}_6\text{C}$ are there in 24 grams?
Chem 1	C4: Chemical calculations	C4.5	What is a molecule?
Chem 1	C4: Chemical calculations	C4.6	A Hydrogen atom has the chemical symbol ^1_1H . How many electrons has it got?
Chem 1	C4: Chemical calculations	C4.7	In a chemical reaction, what are the products?
Chem 1	C4: Chemical calculations	C4.8	A Sodium atom has the chemical symbol $^{23}_{11}\text{Na}$. How many neutrons has it got?
Chem 1	C4: Chemical calculations	C4.9	In a chemical reaction, what are the reactants?
Chem 1	C4: Chemical calculations	C4.10	What are the units of concentration?
Chem 1	C4: Chemical calculations	C4.11	Balance this equation: $\text{Ca} + \text{O}_2 \rightarrow \text{CaO}$
Chem 1	C4: Chemical calculations	C4.12	What is a compound?
Chem 1	C4: Chemical calculations	C4.13	What is an atom?
Chem 1	C4: Chemical calculations	C4.14	A Fluorine atom has the chemical symbol $^{19}_9\text{F}$. How many protons has it got?
Chem 1	C4: Chemical calculations	C4.15	In chemistry, what is a mole of a substance?
Chem 1	C4: Chemical calculations	C4.16	What is an isotope?
Chem 1	C4: Chemical calculations	C4.17	Balance this equation: $\text{CH}_4 + \text{O}_2 \rightarrow \text{H}_2\text{O} + \text{CO}_2$
Chem 1	C4: Chemical calculations	C4.18	Rusting is a chemical reaction. A rusty iron nail has a greater mass than a non-rusty one. How can this be the case?
Chem 1	C4: Chemical calculations	C4.19	What is the Relative Atomic Mass (A_r) of Boron if it has the chemical symbol $^{11}_5\text{B}$?
Chem 1	C4: Chemical calculations	C4.20	What is the law of conservation of mass?
Chem 1	C4: Chemical calculations	C4.21	What is the Relative Formula Mass (M_r) of H_2O ? Where the atoms have the chemical symbols ^1_1H and $^{16}_8\text{O}$.
Chem 1	C4: Chemical calculations	C4.22	In a chemical equation, what does the arrow mean?
Chem 1	C4: Chemical calculations	C4.23	What is an element?
Chem 1	C4: Chemical calculations	C4.24	What is a solution?
Chem 1	C4: Chemical calculations	C4.25	What is a solute?
Chem 1	C5: Chemical changes	C5.1	Write a general word equation for metal carbonates + acid reactions.
Chem 1	C5: Chemical changes	C5.2	What is the difference between a base and an alkali?
Chem 1	C5: Chemical changes	C5.3	How do you test for carbon dioxide?
Chem 1	C5: Chemical changes	C5.4	Name the salt made when magnesium reacts with sulfuric acid?
Chem 1	C5: Chemical changes	C5.5	In a chemical reaction, what are the products?
Chem 1	C5: Chemical changes	C5.6	Carbon is more reactive than iron. Which will be higher up the reactivity series?
Chem 1	C5: Chemical changes	C5.7	Write the general word equation for a neutralisation reaction.
Chem 1	C5: Chemical changes	C5.8	Write a general word equation for metal + oxygen reactions.
Chem 1	C5: Chemical changes	C5.9	What is an ion?
Chem 1	C5: Chemical changes	C5.10	What is the charge of the product made during ionic reactions?
Chem 1	C5: Chemical changes	C5.11	What happens during displacement reactions?
Chem 1	C5: Chemical changes	C5.12	Give 2 definitions of reduction
Chem 1	C5: Chemical changes	C5.13	In a chemical reaction, what are the reactants?
Chem 1	C5: Chemical changes	C5.14	What does OIL RIG stand for in chemistry?
Chem 1	C5: Chemical changes	C5.15	Name the salt made when sodium reacts with hydrochloric acid?
Chem 1	C5: Chemical changes	C5.16	What are the 4 state symbols used in equations and what does each mean?
Chem 1	C5: Chemical changes	C5.17	Carbon is more reactive than iron. Complete this word equation: Carbon + Iron Oxide \rightarrow
Chem 1	C5: Chemical changes	C5.18	How do you test for Hydrogen?
Chem 1	C5: Chemical changes	C5.19	Write a general word equation for metal + water reactions.
Chem 1	C5: Chemical changes	C5.20	What do alkali contain and what pH range are they?
Chem 1	C5: Chemical changes	C5.21	Write a general word equation for metal + acid reactions.
Chem 1	C5: Chemical changes	C5.22	What do acids contain and what pH range are they?
Chem 1	C5: Chemical changes	C5.23	Give 2 definitions of oxidation
Chem 1	C5: Chemical changes	C5.24	Complete and balance this ionic symbol equation: $\text{K}^+ + \text{O}^{2-} \rightarrow$
Chem 1	C5: Chemical changes	C5.25	Name the salt made when lithium reacts with nitric acid?
Chem 1	C6: Electrolysis	C6.1	What charge ions do most non-metals make and why?
Chem 1	C6: Electrolysis	C6.2	What is brine?
Chem 1	C6: Electrolysis	C6.3	What is an ore?
Chem 1	C6: Electrolysis	C6.4	If an element is in group 3, what ions will it make?
Chem 1	C6: Electrolysis	C6.5	What is an electrolyte?
Chem 1	C6: Electrolysis	C6.6	What is an ion?
Chem 1	C6: Electrolysis	C6.7	What does OIL RIG stand for in chemistry?
Chem 1	C6: Electrolysis	C6.8	What charge ions collect at the negative electrode?
Chem 1	C6: Electrolysis	C6.9	Give 2 definitions of reduction
Chem 1	C6: Electrolysis	C6.10	How do you test for Hydrogen?
Chem 1	C6: Electrolysis	C6.11	Complete this half equation for a Sulfur ion at the anode: $\text{S}^{2-} + ? \rightarrow \text{S}$
Chem 1	C6: Electrolysis	C6.12	What is the name of the positive electrode?
Chem 1	C6: Electrolysis	C6.13	What is electrolysis?
Chem 1	C6: Electrolysis	C6.14	What is the name of the negative electrode?
Chem 1	C6: Electrolysis	C6.15	What does the group number for an element tell you about the electron configuration for an atom of that element?
Chem 1	C6: Electrolysis	C6.16	Complete this half equation for a potassium ion at the cathode: $\text{K}^+ + ? \rightarrow \text{K}$
Chem 1	C6: Electrolysis	C6.17	Give 2 definitions of oxidation
Chem 1	C6: Electrolysis	C6.18	What products do we get from the electrolysis of brine?
Chem 1	C6: Electrolysis	C6.19	What charge ions collect at the positive electrode?
Chem 1	C6: Electrolysis	C6.20	What do we use to reduce the melting point of aluminium oxide during electrolysis?
Chem 1	C6: Electrolysis	C6.21	What charge ions do metals make and why?
Chem 1	C6: Electrolysis	C6.22	Name the ore that we extract aluminium from?
Chem 1	C6: Electrolysis	C6.23	In what form must the electrolyte be in for electrolysis to work?
Chem 1	C6: Electrolysis	C6.24	How do you test for Oxygen?
Chem 1	C6: Electrolysis	C6.25	If an element is in group 7, what ions will it make?

Chem 1	C7: Energy changes	C7.1	What is a catalyst?
Chem 1	C7: Energy changes	C7.2	[HT] If energy needed to break reactants is 800kJ/mol and energy needed to break products is 600kJ/mol. How much energy is released in this exothermic reaction?
Chem 1	C7: Energy changes	C7.3	In a chemical equation, what does the arrow mean?
Chem 1	C7: Energy changes	C7.4	In a chemical reaction, what are the reactants?
Chem 1	C7: Energy changes	C7.5	What do we call reactions that take in energy from the surroundings?
Chem 1	C7: Energy changes	C7.6	If the energy stored in the products is greater than the energy in the reactants, what type of reaction is it?
Chem 1	C7: Energy changes	C7.7	[HT] Describe what energy is used for in exothermic reactions
Chem 1	C7: Energy changes	C7.8	If the energy stored in the products is less than the energy in the reactants, what type of reaction is it?
Chem 1	C7: Energy changes	C7.9	[HT] Describe what energy is used for in endothermic reactions
Chem 1	C7: Energy changes	C7.10	What is bond energy?
Chem 1	C7: Energy changes	C7.11	Sketch the energy profile graph for an endothermic reaction.
Chem 1	C7: Energy changes	C7.12	Give a use of endothermic reactions?
Chem 1	C7: Energy changes	C7.13	What do we call reactions that give out heat to the surroundings?
Chem 1	C7: Energy changes	C7.14	Give an example of an exothermic reaction?
Chem 1	C7: Energy changes	C7.15	How does a catalyst affect activation energy of a reaction?
Chem 1	C7: Energy changes	C7.16	Sketch the energy profile graph for an exothermic reaction.
Chem 1	C7: Energy changes	C7.17	What happens to chemical bonds when reactions take place?
Chem 1	C7: Energy changes	C7.18	[HT] If energy needed to break reactants is 400kJ/mol and energy needed to break products is 600kJ/mol. How much energy is absorbed in this endothermic reaction?
Chem 1	C7: Energy changes	C7.19	What is the law of conservation of energy?
Chem 1	C7: Energy changes	C7.20	[HT] Bond energy for H-H is 436. How much energy is needed to break 2H ₂ ?
Chem 1	C7: Energy changes	C7.21	What is activation energy of a reaction?
Chem 1	C7: Energy changes	C7.22	If a H-H bond requires 436 kJ/mol to break, what type of reaction is $H + H \rightarrow H_2$?
Chem 1	C7: Energy changes	C7.23	Give a use of exothermic reactions?
Chem 1	C7: Energy changes	C7.24	What does k stand for in kJ/mol?
Chem 1	C7: Energy changes	C7.25	In a chemical reaction, what are the products?