C4 Revision Questions

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| C4.1 Atomic Structure | State the name, mass, charge and location of the three subatomic particles. |
| Draw a labelled diagram of an atom. |
| What does the atomic number tell us? |
| How do we calculate the number of neutrons in an atom? |
| Define an isotope and give an example. |
| C4.2 Electronic Structure | What property of an element is used to order the periodic table? |
| Define an element and a compound. |
| One of the original ideas about the structure of an atom was that the negative charges were dotted about inside a cloud of positive charge. Describe the experiment carried out by Rutherford which proved this was wrong. |
| How many electrons can each of the first three shells hold? |
| C4.3 Ionic Bonding | What happens in terms of electrons when an ion is formed? |
| Ionic bonding always occurs between what two types of elements? |
| Draw dot and cross diagrams for the following compounds: sodium chloride, magnesium oxide and calcium fluoride. |
| C4.4 Ionic Compounds | What states do ionic compounds conduct electricity? Explain why. |
| Why do ionic compounds have high melting points? |
| Draw a labelled diagram of a giant ionic lattice e.g. sodium chloride |
| C4.5 Electrons and the Periodic Table | Explain the contribution of each of these scientists to the development of the periodic table: Dobereiner, Newlands, Mendeleev |
| What is a group in the periodic table? |
| What is a period in the periodic table? |
| What is the connection between the electronic structure of an element and its group? |
| What is the connection between the electronic structure of an element and its period? |
| C4.6 Covalent Bonding | Covalent bonding always occurs between what type of element? |
| Draw dot and cross diagrams for water, carbon dioxide and methane. |
| Explain why simple covalent molecules have low melting and boiling points. |
| C4.7 The Group 1 Elements | State the names and symbols of the group one elements. |
| What is the collective name for the group 1 elements? |
| Write a word and symbol equation for the reaction of Na with H2O. |
| Describe what you observe when Li, Na and K react with water. |
| Describe and explain the trend in reactivity of the group 1 elements. |
| Describe the trend in melting point and density of the group 1 elements. |
| Explain why the group 1 elements all react in a similar way. |
| C4.8 Flame Tests | Describe the procedure for carrying out a flame test. |
| State the colours produced by Li, Na and K in flame tests. |
| C4.9 The Group 7 Elements | Describe the colour and state at room temperature of chlorine, bromine and iodine. |
| Write a general word and symbol equation for the reaction of group 7 elements (X) with group 1 elements (M). |
| Describe the trend in melting and boiling points of group 7 elements. |
| C4. 10 Displacement Reactions | Describe and explain the trend in reactivity of the group 7 elements. |
| Explain why the group 7 elements all react in a similar way. |
| Describe what a displacement reaction is, using an example to illustrate your answer. |
| Explain how you can predict whether a displacement reaction will occur. |
| C4.11 The Transition Metals | State where the transition metals are found in the periodic table. |
| Describe the typical properties of a transition metal. |
| What do compounds of transition metals have in common? |
| State a common use for transition metals. |
| State the colour of copper, iron (II) and iron (III) compounds. |
| Write a word and symbol equation for the thermal decomposition of copper carbonate. |
| C4.12 Precipitation Reactions | Explain what a precipitation reaction is. |
| State the colour of copper, iron (II) and iron (III) hydroxides. |
| C4.13 Metallic Structure | Explain why copper is used for wiring. |
| Explain why steel is used for making cars and bridges. |
| Describe the typical properties of metals. |
| Draw a labelled diagram of metallic bonding. |
| Explain how metallic bonding leads to a high melting point and good electrical conductivity. |
| C4.14 Supercondutors | Describe what causes electrical resistance in metals. |
| Describe what a superconductor is. |
| State 2 existing uses of superconductors and 2 potential uses. |
| Describe the main reason why superconductors are not widely used at the moment. |
| C.15 Purifying Water | Name four different sources of water. |
| State three industrial uses of water. |
| List three common water pollutants. |
| Describe how water is purified. |
| C4.16 Testing Water | Describe how to test for sulphate ions. Include a balanced symbol equation. |
| Describe the test for halide ions and the results for chloride, bromide and iodide. Include balanced symbol equations. |