C3 Revision Questions

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| C3.1 Rate of reaction 1 | Give examples of a slow reaction and a fast reaction. |
| What is reaction rate? What are the units? |
| How do we calculate reaction rate? |
| What is a ‘limiting reactant’ |
| The amount of product is directly proportional to what? |
| C3.2 Rate of reaction 2 | Why does a reaction stop? |
| What do the particles do to cause a chemical reaction? |
| What happens to the rate of reaction if you: a. increase the temperature; b. decrease the temperature; c. increase or decrease the concentration; d. increase or decrease the pressure of gases reacting? |
| On what does the reaction rate depend? (Use collision theory ideas). |
| C3.3 Rates of reaction 3 | What does a catalyst do? Give examples of catalysts. |
| Which reacts faster – powder or solid lumps? Why? |
| How does surface area affect reaction rate? (In terms of collisions) |
| C3.4 Reacting masses | What happens to mass in a reaction? |
| How do you calculate the relative formula mass of CO2? Al(OH)3? |
| H2 + Cl2🡪2HCl. How much HCl is made from 2g of hydrogen? |
|  | Answer q 9-14 on p113 of the textbook. |
| C3.5 Percentage yield and Atom Economy | What does percentage yield tell us? What is the formula for percentage yield? |
| Calculate the percentage yield of a reaction to produce copper oxide. It’s predicted yield is 64g, only 48g are made. |
| What are the reasons that you may not get 100% percentage yield? |
| What is atom economy a measure of? Why is it of interest to chemical industries? |
| Calculate the atom economy of these and out them in order of decreasing atom economy. The desired product is in **bold.**  Zn +2HCl🡪 **ZnCl2** +H2; Zn +2HCl🡪 ZnCl2 +**H2**; 2Mg+O2🡪**2MgO** |
| C3.6 Energy | What apparatus would you use to compare the efficiency of two fuels? |
| How could you calculate the energy given off by 1 g of fuel? |
| Define the words Exothermic and Endothermic in terms of energy changes and bonds. |
|  | Calculate the energy transferred if 100g of water is heated from  20OC to 70OC. |
|  | What formula is used to calculate the energy in a fuel? |
|  | Calculate the energy per gram released by 5.0g of fuel that raises the temperature of 100g of water from 18 OC to 78 OC |
| C3.7 Batch or Continuous? | Give the main features and uses of a. a continuous process; b. a batch process. |
| List the factors affecting cost of manufacturing products. |
| Why are new drugs tested and why is drug development so expensive? |
| How can drugs be extracted from plants? |
| How can you tell how pure a substance is? |
| What are the advantages and disadvantages of a. a continuous process; b. a batch process. |
| C3.8 Allotropes | List the main allotropes of carbon. What are allotropes? |
| What are the differences between diamond and graphite? |
|  | What are the uses of diamond? What properties does it have that allow these uses? |
| What are the uses of graphite? What properties does it have that allow these uses? |
| Why is fullerene able to be used in new drug delivery systems? |
|  | Why are nanotubes useful as catalysts? |