# Year 12 Chemistry Revision Tables Using and Controlling Reactions

### Topic 3.4: Rate of Reaction

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| ***Expectation***  From SACE Subject Outline | ***Test Q*** | ***Proficiency***  (beginning/sometimes/proficient) | ***Comments/questions*** | ***Assignment question(s)*** |
| Determine the effect of varying conditions on the rate of a given reaction, using experimental data. | **-** |  |  | Assignment 4 Q6(b)(d) |
| Draw and interpret graphs representing changes in quantities or concentration of reactants or products against time. | **2(a)** |  |  | Assignment 4 Q6(c)  Assignment 5 Q4(e) |
| Predict and explain the effect that changes in condition have on the rates of reactions in terms of the:  · frequency of collisions between reactant particles  · orientation of colliding particles  · energy of colliding particles  · activation energy. | **2(b-c)** |  |  | Assignment 4 Q3 |
| Draw and interpret energy profile diagrams that show the relative enthalpies of reactants and products, the activation energy, and the enthalpy change for the reaction. | **1** |  |  | Assignment 4 Q4 |

### Topic 3.5: Chemical Equilibrium

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| ***Expectation*** | ***Test Q*** | ***Proficiency*** | ***Comments/questions*** | ***Assignment question(s)*** |
| Describe the dynamic nature of a chemical system at equilibrium. | **-** |  |  | Assignment 5 Q1(b) |
| Write *Kc* expressions that correspond to given reaction equations, and perform calculations involving *Kc* and equilibrium concentrations in which all reacting species are included in the expression. | **5(b-d)** |  |  | Assignment 5 Q2  Assignment 5 Q3(b), Q4(c) |
| Draw and interpret graphs representing changes in concentration of reactants and products against time. | **-** |  |  | Assignment 5 Q4(e) |
| Calculate the initial and/or equilibrium concentrations or quantities of reactants and products, given sufficient information about a particular system initially and/or at equilibrium. | **-** |  |  | Assignment 5 Q3(a) |
| Predict, using Le Châtelier’s principle, the effect on the equilibrium position of a system of a change in the:  · concentration of a reactant or product  · overall pressure of a gaseous mixture  · temperature of an equilibrium mixture for which the *H* value for the forward or back reaction is specified. | **5(e)** |  |  | Assignment 5 Q3(c), Q4 |

### Topic 3.6: Chemical Industry

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| ***Expectation*** | ***Test Q*** | ***Proficiency*** | ***Comments/questions*** | ***Assignment question(s)*** |
| Explain the reaction conditions that will maximise yield. | **5(f)** |  |  | Assignment 5 Q5 |
| Interpret flow charts and use them for such purposes as identifying: raw materials; chemicals present at different steps in the process; waste products; and by-products. | **-** |  |  | Assignment 6 Q1 |

### Topic 3.7: Metal Production

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| ***Expectation*** | ***Test Q*** | ***Proficiency*** | ***Comments/questions*** | ***Assignment question(s)*** |
| Predict whether a metal is likely to occur in nature uncombined or combined with other elements, given the relative position of the metal in a table of metal reactivities. | **3(a)** |  |  | Assignment 6 Q2 |
| Identify the stages in the production of a metal from its ore and explain why not all stages are necessary in the production of some metals. | **3(c)** |  |  | Assignment 6 Q3 |
| Describe, with the aid of equations, the production of zinc from its ore. | **4** |  |  | Assignment 6 Q4 |
| Explain why the production of aluminium requires a molten non-aqueous electrolyte. | **3(d)** |  |  | Assignment 6 Q5(a) |
| Explain why zinc and iron can be obtained by reduction using carbon whereas this is not possible for aluminium. | **-** |  |  | Assignment 6 Q5(b) |
| Predict the likely method of reduction of a metal compound to the metal, given the position of the metal in the activity series of metals. | **3(e)** |  |  | Assignment 6 Q6(c) |
| Explain why reduction using electrolysis of an aqueous solution is preferable to electrolysis of a melt. | **-** |  |  | Assignment 6 Q5(a) |