# Year 12 Chemistry Self-Assessment Analytical Techniques

### Formative Test 1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Expectation***  From SACE Subject Outline | ***Test Q*** | ***Proficiency***  (beginning/sometimes/proficient) | ***Comments/questions*** | ***Assignment question(s)*** |
| Convert concentrations from one unit to another. | **1(b), 2(f)** |  |  | Assignment 1 |
| Perform stoichiometric calculations when given the reaction equation and the necessary data. | **-** |  |  | Assignment 2 Q4, 5 |
| Describe the correct use of a volumetric flask, a pipette, and a burette. | **2(b)** |  |  | Assignment 2 Q1(a) |
| Describe and explain the procedure involved in carrying out a titration, particularly rinsing glassware and determining the end-point. | **2**  **(c-d)** |  |  | Assignment 2 Q1(c), Q3(b) |
| Determine the concentration of a solution of a reactant in a chemical reaction by using the results of a titration. | **2(e)** |  |  | Assignment 2 Q1(d-e), Q2(b)(i), Q3(d-e) |
| Identify the stationary and mobile phases in an adsorption chromatography process. | **-** |  |  |  |
| Predict the relative strengths of attraction of components for the stationary phase and the mobile phase on the basis of their polarities. | **-** |  |  | Chromatography  Assignment Q1(e) |
| Predict the relative rates of movement of components along a stationary phase, given the structural formulae or relative polarities of the components and the two phases. | **3(b), 4(b)** |  |  | Chromatography  Assignment Q1(e) |
| Describe and apply *R*F values and retention times in the identification of components in a mixture. | **3(a), 4(a)** |  |  | Chromatography  Assignment Q3 |
| State the effect of the absorption or emission of radiation on the energy levels of electrons in atoms or ions. | **-** |  |  | AAS  Assignment Q1(b) |
| State that the wavelengths of radiation emitted and absorbed by an element are unique to that element. | **-** |  |  | AAS  Assignment Q1(c) |
| Explain the principles of atomic absorption spectroscopy in identifying elements in a sample. | **5(a)** |  |  | AAS  Assignment Q1(a) |
| Describe the construction and use of calibration graphs in determining the concentration of an element in a sample. | **5(b)** |  |  | AAS  Assignment Q2(b) |