12. Experimental techniques and chemical analysis

Starter Quiz ·

IGCSE Chemistry Name: _____ Score: _____

1. The independent variable is the one that you:

   ☐ ignore

   ☐ measure

   ☐ deliberately change

   ☐ keep the same

2. In a titration, the piece of apparatus that delivers an exact, measured volume is the:

   ☐ beaker

   ☐ test tube

   ☐ thermometer

   ☐ burette

3. Chromatography separates a mixture because its components:

   ☐ react with the paper

   ☐ travel at different speeds as the solvent moves

   ☐ all move at the same speed

   ☐ evaporate equally

4. Filtration is used to separate:

   ☐ a dissolved solid

   ☐ two gases

   ☐ two liquids

   ☐ an insoluble solid from a liquid

5. A sodium ion gives which flame colour?

   ☐ yellow

   ☐ lilac

   ☐ blue-green

   ☐ red

6. Repeating measurements and averaging removes all errors.

   ☐ True ☐ False

7. How many moles are in 20 cm^3 of acid of concentration 0.5 mol/dm^3? (moles = conc × volume in dm^3)

   _____

8. A spot moves 3 cm; the solvent moves 6 cm. What is the Rf value?

   _____

9. Fractional distillation separates an insoluble solid from a liquid.

   ☐ True ☐ False

10. A potassium ion gives a _____ flame colour.

    _____

12. Experimental techniques and chemical analysis

Answers ·

IGCSE Chemistry

1. **deliberately change**

   You change the independent variable.

2. **burette**

   The burette delivers a precise, variable volume.

3. **travel at different speeds as the solvent moves**

   Different speeds separate the substances.

4. **an insoluble solid from a liquid**

   Filtration removes insoluble solids.

5. **yellow**

   Sodium burns with a yellow flame.

6. **False**

   False. Repeats reduce the effect of random error and improve reliability, but they cannot remove systematic errors, such as a badly calibrated balance.

7. **0.01**

   $0.5 \times (20 \div 1000) = 0.01$ mol.

8. **0.5**

   Rf $= 3 \div 6 = 0.5$.

9. **False**

   False. That is filtration. Fractional distillation separates liquids with different boiling points, such as crude oil fractions or ethanol and water.

10. **lilac**

    Potassium burns lilac.