

ACTIVITY 3

MARKING STUDENT RESPONSES

Use the mark scheme to decide on a mark for each student response below, then compare your mark with the Trainer's mark.

Don't worry - this isn't a test and your marks will NOT be collected in!

Q		Marks	
		You	Trainer
2d	<p>(d) In another experiment, the total volume of air in the apparatus before heating is 150 cm³. At the end of the experiment the volume of gas remaining is 125 cm³.</p> <p>Use this information to calculate the percentage of oxygen in this sample of air. (2)</p> $\frac{125}{150} \times 100 = 83.3\%$ $100 - 83.3 = 16.6\%$ <p style="text-align: right;">percentage of oxygen = 16.6</p>		
5c	<p>(c) The same amount of magnesium is added to 50cm³ of dilute sulfuric acid.</p> <p>Explain the effect this would have on the temperature change observed. (2)</p> <p>there would be no effect on the temperature change because the acid was already in excess and therefore increasing the volume of acid has no effect.</p>		
6aii	<p>(ii) Explain why hydrogen has a very low boiling point. (2)</p> <p>because it has weak electrostatic attractions so the bonds can be broken easily.</p>		
6bi	<p>(i) State what is meant by the term isotopes. (2)</p> <p>isotopes are elements with the same number of protons but a different number of neutrons.</p>		

Q		Marks	
		You	Trainer
8c	<p>(c) Calculate the maximum mass of water that could be collected when a sample of hydrated copper(II) sulfate of mass 2.50 g is heated. [M_r of $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ is 250]</p> <p>$\text{CuSO}_4 \cdot 5\text{H}_2\text{O} : 5\text{H}_2\text{O}$ Ratio 1 : 5 Mr 250 : 90 Mass 2.50 : 0.05 $0.05 \times 90 = 4.5$ Moles 0.01 : 0.05 mass of water = 4.5 g</p> <p>$\text{mass} = \frac{\text{Mass}}{(3) \text{ Mr}}$</p>		
10b	<p>(b) Describe a test to show that dilute hydrochloric acid contains chloride ions. (2)</p> <p>it will react with potassium to form a white precipitate.</p>		
11e	<p>(e) Z is an unsaturated hydrocarbon. Explain what is meant by the term unsaturated hydrocarbon. (3)</p> <p>unsaturated * something that contains a carbon-carbon double bond hydrocarbon contains both hydrogen and carbon molecules</p>		
11fi	<p>Suggest the displayed formula for a possible product of the reaction between W and bromine. (1)</p> <p>$\begin{array}{c} \text{H} & \text{H} & \text{Br} \\ & & \\ \text{H}-\text{C}- & \text{C}- & \text{C}-\text{H} \\ & & \\ \text{H} & \text{H} & \text{Br} \end{array}$</p>		
12a	<p>(a) A titanium ore contains the composition by mass Fe = 36.8% Ti = 31.6% O = 31.6%</p> <p>Show by calculation that the empirical formula of this ore is FeTiO_3 (3)</p> <p>$\begin{array}{r} \text{Fe} \\ 36.8 \\ \hline 56 \\ \hline = 0.6571 \\ \hline 0.6571 \\ 0.6571 \\ \hline = 1.00 \\ \approx 1 \end{array} \quad \begin{array}{r} \text{Ti} \\ 31.6 \\ \hline 48 \\ \hline = 0.6571 \\ \hline 0.6571 \\ 0.6571 \\ \hline = 1.14 \\ \approx 1 \end{array} \quad \begin{array}{r} \text{O} \\ 31.6 \\ \hline 16 \\ \hline = 2.256 \\ \hline 0.6571 \\ 0.6571 \\ \hline = 3.43 \\ \approx 3 \end{array}$ FeTiO_3</p>		
12di	<p>(d) (i) Describe the bonding in titanium metal. (2)</p> <p>There are very strong electrostatic attraction between them.</p>		

Q		Marks	
		You	Trainer
16cii	<p>(ii) Explain, using the particle collision theory, how the rate of reaction changes with an increase in concentration of hydrochloric acid. (3)</p> <p>An increase in concentration of hydrochloric acid means that there are more particles of hydrochloric acid which means there is an increased frequency in collisions between the particles of the two substances. Therefore more successful collisions take place, increasing the rate of reaction.</p>		