



## Answers to 2018 O level Chemistry 5076/ 5078 Paper 1

Question	Answer	Explanation
21	B	Known fact
22	A	Since solution turns red litmus paper blue, the gas is ammonia (alkaline). Iron (III) produces red-brown precipitate and thus option A is not correct. Options C and D are tests for ammonium cation and nitrate anion respectively, which produce ammonia gas.
23	B	Since there are 5 protons in the nucleus, the element is Boron. However, it forms an isotope of boron with neutron number 7.
24	B	A covalent bond is an irreversible bond where the electrons are shared between two non-metallic atoms.
25	B	Since ethene and oxygen are present in the ratio of 1:3, $20\text{cm}^3$ of ethene will give $60\text{cm}^3$ of oxygen Since $70\text{cm}^3$ of oxygen is used, ethene is the limiting agent and $10\text{cm}^3$ of oxygen is unreacted. $2\text{moles of CO}_2 \text{ formed} = 2 \times 20 = 40\text{cm}^3$ Total volume of gas: $40 + 10 = 50\text{cm}^3$
26	A	$n(\text{NaOH}) = (28/100) \times 0.5 = 0.014 \text{ mol}$ $n(\text{H}_2\text{SO}_4) = 0.014/2 = 0.007\text{mol}$ $c(\text{H}_2\text{SO}_4) = 0.007/(25/1000) = 0.28 \text{ mol/dm}^3$
27	B	Endothermic reactions take in heat from the surrounding. Exothermic reactions release heat to the surrounding. Therefore, a rise in temperature in the surrounding means heat is given out and reaction is exothermic and vice versa. Thus, W & Z: exothermic, X & Y: endothermic.
28	C	Ways to increase the speed of reaction: increase temperature of reaction, increase concentration of reactant, increase surface area of reactants and the use of catalyst.
29	D	Oxidation occurs when there is an increase in oxidation number or decrease in number of electrons.
30	B	Acidic oxides are oxides of non-metals.
31	C	Calcium hydroxide is added to water to release calcium and hydroxide ions. The hydroxide ions then raises the pH of soil to neutralise acidity.
32	A	The decrease in melting point when going down the group reflects the decrease in strength of metallic bond due to the increase in atomic size. The rest of the options give an upward trend when going down the group.
33	D	The reaction will only occur when the more reactive metal displaces the less reactive metal from the reaction.
34	A	Recycling iron does not decrease the amount of natural resources available but instead is beneficial to the environment and the amount of natural resources.
35	C	Known fact
36	D	Nitrogen dioxide and sulfur dioxide dissolve in water to produce nitric acid and sulfuric acid respectively which cause acid rain and erode buildings.
37	D	Hydrocarbons undergo complete combustion to produce carbon dioxide and water. Options A, B and C apply for unsaturated alkenes only.
38	D	Members of the same homologous series have same functional group and properties. In this case, they share the formula $\text{C}_n\text{H}_{2n+2}$ .
39	C	The compound contains unsaturated C=O bond which decolourises aqueous bromine.
40	B	The conversion of ethanol to propanol involves more than a single step. Option A is oxidation reaction, C is polymerization and D is alcoholic fermentation which can all be done by a single chemical reaction.