



#	Ans	Workings/Remarks
CHEMISTRY		
1	D	Boiling point already confirms the purity of water. Anhydrous copper sulfate tests for presence of water.
2	D	Iron (II) hydroxide is the green precipitate. Ammonia gas is given off when aluminium powder is added to test for presence of nitrate ion.
3	B	Isotopes are elements with same proton number but different neutron number.
4	D	Ionic compound has high melting and boiling point because it has strong electrostatic force of attraction. Ionic compound conducts electricity only in liquid state because the ions are mobile.
5	C	
6	A	Mole ratio of alkene : carbon dioxide = 20 : 60 = 1 : 3 This implies each alkene molecule contains 3 carbon atoms.
7	B	The addition of excess aqueous sodium hydroxide causes the temperature to return to room temperature.
8	A	Carbon dioxide is produced and escaped.
9	B	Oxidising agent causes the oxidation state of iodine to increase from -1 in I ⁻ (colourless) to 0 in I ₂ (brown).
10	A	$\text{NaOH} \text{ (aq)} + \text{HNO}_3 \text{ (aq)} \rightarrow \text{NaNO}_3 \text{ (aq)} + \text{H}_2\text{O} \text{ (l)}$ $\text{Na}^+ \text{OH}^- + \text{H}^+ \text{NO}_3^- \rightarrow \text{Na}^+ \text{NO}_3^- + \text{H}_2\text{O}$ Ionic equation : $\text{H}^+ + \text{OH}^- \rightarrow \text{H}_2\text{O}$
11	C	Pipette and burette are used in titration which uses soluble (aq) reactants to prepare soluble (aq) products.
12	D	
13	C	Fluorine is more reactive than chlorine. As number of shells increases down group VII, the outermost electrons are further away from the nucleus, thus the attraction from nucleus on valence electrons decreases and it is harder to take in electrons down group VII.
14	C	Z is the most reactive metal because it displaces all the other metals from their solutions. X is the least reactive metal because it does not displace any metal from their solution.
15	D	
16	B	Approximately 20% of air is oxygen which reacted with the iron filings to form rust.
17	C	Sulfur dioxide and nitrogen oxide form acid rain which corrodes limestone (carbonates) building.
18	D	As number of carbon atoms varies for the members of the same series, the intermolecular force charges, hence the physical properties change.
19	C	P is saturated because no hydrogen could be added to it.
20	C	



BIOLOGY

21	B	Cell membrane is found beneath the cell wall.
22	C	Organ: R: Leaf: a distinct part of an organism that performs specific function. Tissue: P: Epidermal layer: a collection of similar cells that perform similar function
23	B	No osmosis occurs when the concentration of sugar solution is equal to the water concentration in potato, thus there is no change in the length of potato.
24	D	Enzyme and substrate must have distinct complementary shape in order to bind together, just as a key fits into a lock.
25	A	Pancreatic duct opens into the initial region of small intestine for digestion of proteins, carbohydrates and fats.
26	B	
27	C	Palisade mesophyll is located near the upper ends of leaves where there is more exposure to the sunlight.
28	C	High temperature results in more evaporation of water while low humidity results in a steeper concentration gradient.
29	B	Pulmonary vein carries oxygenated blood from the lung back to the heart.
30	C	Right atrium pumps blood into the right ventricle while right ventricle pumps blood to the lung, which is a distance away from the heart. Thus right ventricle has a thicker wall to exert more force to pump blood through a longer distance.
31	B	Nicotine stimulates adrenaline secretion, which speeds up heart rate.
32	D	Anaerobic respiration produces lactic acid.
33	D	Retina contains a layer of light sensitive cells. Iris adjusts the amount of light entering the eye by changing the size of pupil. Ciliary body changes the thickness of lens for viewing of distant and near objects.
34	B	It is not a sexual reproduction because there is no fusion of male and female gametes.
35	C	
36	D	
37	C	Dominant alleles express themselves even in the presence of another allele.
38	D	Respiring decomposers produce water, which could be used by plants for photosynthesis.
39	D	D has the largest size and mass, thus it could feed a large number of organisms in the next trophic level.
40	C	

