MCQ P1

Qn	Ans	Qn	Ans
21	С	31	Α
22	В	32	В
23	D	33	Α
24	Α	34	В
25	Α	35	C
26	В	36	C
27	D	37	D
28	С	38	В
29	D	39	Α
30	C	40	D

Paper 3 Section A

Q1		suggested solution	Other acceptable / not acceptable	Feedback
(a)	(i)	W [1]		
	(ii)	Y [1]		
(b)		Steel is an alloy The <u>layers of atoms of different sizes [1]</u> cannot slide over each other easily [1]		

Q2	suggested solution	Other acceptable / not acceptable	Feedback
(a)	$2Fe + 3Cl_2 \rightarrow 2FeCl_3 [2]$		
	Not balanced [1]		-
(b)	Iron is oxidised [1] The oxidation state of iron has increased from 0 in Fe to +3, in Fe ³⁺ [1]		

Q3		suggested solution	Other acceptable / not acceptable	Feedback
(a)	(i)	Fractional distillation [1]		-
	(ii)	Difference in boiling points of nitrogen and oxygen. [1]		
(b)		Relights a glowing splint [1]	Glowing splint rekindles [1]	
(c)			[1] : correct number of bonding electrons[1] correct number of unbonded electrons	

Q4	sugę	gested solution	Other accepta accepta	ble / not	Feedback
	oxides	formula of oxide	nature of oxide (acidic /basic /amphoteric)	solubility in water	
	sulfur	SO ₂	acidic	Yes [1]	
	magnesium	MgO	basic [1]	No [1]	
	zinc	ZnO [1]	amphoteric [1]	No [1]	

Q5	suggested solution	Other acceptable / not acceptable	Feedbacks
(a)	S [1]		
(b)	× [1]		
(c)	T and V [2] both must be correct		
(d)	S [1] and W [1]		

Q6		suggested solution	Other acceptable / not acceptable	Feedback
(a)	(i)	$2Li + 2H_2O \rightarrow 2LiOH + H_2$		
		The elements reacts with water to produce alkalis [1] and hydrogen		
(b)	(i)	The temperature is above the melting point is at 39 °C [1]	The m.p is below 40 °C [1]	
	(ii)	Density is greater than 1 g/cm ³ [1] Density is 1.53 g/cm ³ [1], which is higher than density of water		
(c)		Sodium floats on water [1] Reacts violently produces bubbles of gas / effervescence [1] Sparks of fire with orange coloured flame [1]		

Q7	suggested solution	Other acceptable / not acceptable	Feedback
	methane [1]		
	н н н н-с-с=с-н н [1]		
	alcohol [1]		
	н н н н-с-с-с-он н н н [1]		

Q8		suggested solution	Other acceptable / not acceptable	Feedback
	А	zinc carbonate		
	В	carbon dioxide		
	С	zinc nitrate		
	D	zinc hydroxide / zinc(II) hydroxide		
	E	ammonia		

Q9		suggested solution	Other acceptable / not acceptable	Feedbacks
(a)		A homologous series is a family of organic compounds with the same functional group [1] and similar chemical properties.[1]		
(b)		The flammability decrease [1]		
(c)	(i)	Mr of C₅H₁1OH : 12(5) +11 + 16 +1 = 88		
	(ii)	138 °C	130 to 140 °C	

Q10		suggested solution	Other	Feedback
			acceptable / not	
			acceptable	
(a)	(i)	Ī		
		volume of gas / cm ³		
		guorom		
		W X		
		0 10 time / mir		
		Both Correct axes -[1]		
		correct curve for X -end @10 min -[1]		
	(11)	Correct curve for W [1]		
(b)		At a higher temperature, more reactant particles gain		
		more kinetic energy [1].		
		or equal than the activation energy that is greater		
		this results in a higher frequency of effective collision.		
		[1]		
(c)	(i)	Mr of citric acid, C ₃ H ₅ O(COOH) ₃ :		
		36 +5 +16 + (12 +32 +3) (3)		
		= 192		
	(;;)	[a] = mal/dm3 + 20.2 / 402		
	(11)	[c] in moi/ am [*] : 38.3 / 192		
		= 0.2 mol/ dm ³		
	(iii)	Mol of citric acid reacted : 0.2 X [100 /1000]		
	` '	= 0.02 mol		
	(iv)	Mol of CO_2 produced: 0.02 X3 = 0.06 mol		
		Volume : 0.06 X 24 dm ³ = 1.44 dm ³		

Q11		suggested solution	Other acceptable / not acceptable	Feedback
(a)		[1]: 3 repeating units, [1]: correct full structural formula		
(b)		н ососі _з с=с н н н н		-
(c)		Land pollution / burning of plastics produces toxic gas / endanger marine / wildlife [2]. Any 2		
(1)				
(a)			similar	
(e)	(i)	KMnO ₄ / potassium manganate(VII) [1]		
	(ii)	A mixture of ethanol and acidified potassium manganate(VII) [1] is heated [1]in a test tube.		
		The colour of the KMnO ₄ changes from purple to colourless.[1]		

suggested solution	Other acceptable /	Feedbacks
	not acceptable	
pH is greater 7 / reacts with ammonium salts to produce ammonia/ taste bitter/ soapy/ reacts with acid to form salt and water only. Any [2]		
Mr : (14+4)(2) + 32+ 64 = 132 [1]		-
) mol of $(NH_4)_2SO_4 : 264 / 132$ = 2 mol [1] mol of Na ₂ SO ₄ = 2 mol mass : 2 X [23 (2) + 32 +64] = 284 g [1]		
 Using a pipette, transfer 25.0 cm³ of sulfuric acid into a conical flask. [1] Add a few drops of methyl orange indicator to the conical flask. [1] Add sodium hydroxide in a burette [1] and dispense/run the sodium hydroxide into the conical flask until the mixture turns orange/ peach. [1] The experiment is repeated again with the same volume of sodium hydroxide but without using the indicator[1] 		
	suggested solution pH is greater 7 / reacts with ammonium salts to produce ammonia/ taste bitter/ soapy/ reacts with acid to form salt and water only. Any [2] Mr : (14+4)(2) + 32+ 64 = 132 [1] mol of (NH ₄) ₂ SO ₄ : 264 /132 = 2 mol [1] mol of Na ₂ SO ₄ = 2 mol mass : 2 X [23 (2) + 32 +64] = 284 g [1] Using a pipette, transfer 25.0 cm ³ of sulfuric acid into a conical flask. [1] Add a few drops of methyl orange indicator to the conical flask. [1] Add sodium hydroxide in a burette [1] and dispense/run the sodium hydroxide into the conical flask until the mixture turns orange/ peach. [1] The experiment is repeated again with the same volume of sodium hydroxide but without using the indicator[1]	suggested solution Other acceptable / not acceptable pH is greater 7 / reacts with armonium salts to produce ammonia/ taste bitter/ soapy/ reacts with acid to form salt and water only. Image: Constant of the second sec