

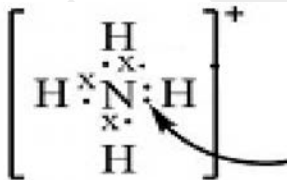
ICSE 2027 SPECIMEN
DRAFT MARKING SCHEME – CHEMISTRY (SCIENCE PAPER 2)

Question 1		[15x1]
(i)	(c) X - iodine, Y - bromine	
(ii)	(d) concentrated sulphuric acid followed by water	
(iii)	(b) In acidic solutions, current is carried by ions.	
(iv)	(c) 3 and 4	
(v)	(d) P - zinc, Q - copper (II) oxide	
(vi)	(a) acid	
(vii)	(a) Both the statements are true.	
(viii)	(c) Both (A) and (R) are true and (R) is the correct explanation of (A).	
(ix)	(b) Q	
(x)	(a) Only 1	
(xi)	(b) C ₂ H ₄	
(xii)	(b) H ₃ O ⁺	
(xiii)	(b) Sodium sulphide	
(xiv)	(c) 3 and 4	
(xv)	(d) 4.48 litres	
Question 2		
(i)	(a) $\text{OH}^{-1} - e \rightarrow \text{OH}$; $4\text{OH} \rightarrow 2\text{H}_2\text{O} + \text{O}_2$ (b) The gas rekindles a glowing splinter / turns alkaline pyrogallol brown (c) Hydrogen (d) Pure water does not conduct electricity, to produce ions, sulphuric acid is added to water. (e) The ratio of A : B is 1 : 2.	[5x1]
(ii)	(a) $\text{CHCl}_3 + \text{Cl}_2 \rightarrow \text{CCl}_4 + \text{HCl}$ (b) $\text{Al}_2\text{O}_3 \cdot 2\text{H}_2\text{O} + 2\text{NaOH} \rightarrow 2\text{NaAlO}_2 + 3\text{H}_2\text{O}$ (c) $\text{ZnO} + 2\text{NaOH} \rightarrow \text{Na}_2\text{ZnO}_2 + \text{H}_2\text{O}$	[5x1]

	(d) $3\text{Cu} + 8\text{HNO}_3 \rightarrow 3\text{Cu}(\text{NO}_3)_2 + 4\text{H}_2\text{O} + 2\text{NO}$ (e) $\text{NaNO}_3 + \text{H}_2\text{SO}_4 \xrightarrow{\text{Below } 200^\circ\text{C}} \text{NaHSO}_4 + \text{HNO}_3$											
(iii)	(a) $\text{C}_n\text{H}_{2n+1}$ (b) Zinc chloride (c) NH_3 (d) Steel (e) NH_4Cl	[5x1]										
(iv)	<table border="1"><tr><td>A</td><td>4. Redox</td></tr><tr><td>B</td><td>3. Reduction</td></tr><tr><td>C</td><td>5. Electrolytic dissociation</td></tr><tr><td>D</td><td>1. Oxidation</td></tr><tr><td>E</td><td>2. Ionization</td></tr></table>	A	4. Redox	B	3. Reduction	C	5. Electrolytic dissociation	D	1. Oxidation	E	2. Ionization	[5x1]
A	4. Redox											
B	3. Reduction											
C	5. Electrolytic dissociation											
D	1. Oxidation											
E	2. Ionization											
(v)	(a) 1) butan-1-oic acid / butanoic acid/ 1-butanoic acid 2) 2 - methyl pentane (b) 1) diethyl ether $\begin{array}{ccccccc} & \text{H} & \text{H} & & \text{H} & \text{H} & \\ & & & & & & \\ \text{H} & - \text{C} & - \text{C} & - \text{O} & - \text{C} & - \text{C} & - \text{H} \\ & & & & & & \\ & \text{H} & \text{H} & & \text{H} & \text{H} & \end{array}$ 2) isopentane $\begin{array}{ccccccc} & & & \text{H} & & & \\ & & & & & & \\ & \text{H} & & \text{H} - \text{C} - \text{H} & & \text{H} & \\ & & & & & & \\ \text{H} & - \text{C} & - & \text{C} & - & \text{C} & - \text{C} - \text{H} \\ & & & & & & \\ & \text{H} & & \text{H} & & \text{H} & \end{array}$ 3) propanone $\begin{array}{ccccccc} & \text{H} & & & \text{H} & & \\ & & & & & & \\ \text{H} & - \text{C} & - & \text{C} & - & \text{C} & - \text{H} \\ & & & & & & \\ & \text{H} & & \text{O} & & \text{H} & \end{array}$	[5x1]										

Question 3						
(i)	$\text{H} \cdot + \text{x} \overset{\text{xx}}{\underset{\text{xx}}{\text{P}}} \text{x} + \cdot \text{H} \rightarrow \text{H} \cdot \text{x} \overset{\text{xx}}{\underset{\text{xx}}{\text{P}}} \text{x} \cdot \text{H}$		[2]			
(ii)	(a) Yellow oily liquid is formed which is explosive (b) Reddish-brown gas/ a gas which rekindles a glowing splinter/ a residue which is yellow when hot and white when cold is formed	[2]				
(iii)	(a) $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ / copper sulphate pentahydrate (b) Dehydrating property (c) $\text{CuSO}_4 \cdot 5\text{H}_2\text{O} \xrightarrow{\text{Conc. H}_2\text{SO}_4} \text{CuSO}_4 + 5\text{H}_2\text{O}$	[3]				
(iv)	(a) N_2O (b) $\text{N}_2\text{O} + \text{H}_2\text{O} \rightarrow 2\text{NOH}$ (c) N_2SO_4	[3]				
Question 4						
(i)	(a) Carbon (b) Magnalium (c) Calcination	[3]				
(ii)	(a) X (b) Z (c) Y	[3]				
(iii)	(a) R=Ferric chloride (b) P=NaCl Q= $\text{Fe}(\text{OH})_3$ (c) The ppt. remains insoluble in excess of NaOH	[1] [2] [1]				
Question 5						
(i)	<table><tr><th>M_2P</th><th>MP</th></tr><tr><td>44g of M_2P = 1 Mole 20 g of M_2P = $1 \times 20 / 44 = 0.44$ moles</td><td>30 g of MP = 1mole 20g of MP= $1 \times 20 / 30 = 0.66$ moles</td></tr></table> Therefore, M_2P has a lesser number of moles.	M_2P	MP	44g of M_2P = 1 Mole 20 g of M_2P = $1 \times 20 / 44 = 0.44$ moles	30 g of MP = 1mole 20g of MP= $1 \times 20 / 30 = 0.66$ moles	[2]
M_2P	MP					
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(ii)	(a) No, both will liberate hydrogen gas which burns with a pop sound. (b) Yes, with zinc nitrate white ppt. will be formed which is soluble in excess of ammonium hydroxide but with lead nitrate white ppt. is formed which remains insoluble in excess.	[2]
(iii)	A = $\text{Zn} + \text{H}_2\text{SO}_4 \rightarrow \text{ZnSO}_4 + \text{H}_2$ B = $\text{Zn} + \text{S} \rightarrow \text{ZnS}$ C = $\text{ZnSO}_4 + 2\text{NaOH} \rightarrow \text{Zn(OH)}_2 + \text{Na}_2\text{SO}_4$ or with NH_4OH	[3]
(iv)	(a) Period 3, Group 17 (b) less	[2] [1]
Question 6		
(i)	(a) P- Ammonia (b) Q- Oxygen (c) R- Oxygen	[3]
(ii)	(a) 252 g of Ammonium dichromate = 1mole 126 g of Ammonium dichromate = 0.5 moles (b) 252 g of ammonium dichromate gives 152 g of chromic oxide 126 g of ammonium dichromate provides $152 \times 126 / 252 = \mathbf{76 \text{ g}}$ of chromic oxide (c) 252 g of ammonium dichromate produces 22.4 l of nitrogen 126 g of ammonium dichromate produces $22.4 \times 126 / 252 = \mathbf{11.2 \text{ l}}$ of nitrogen	[3]
(iii)	(a) Test tube B (b) Ammonia gas (c) Green / Greenish yellow (d) $\text{NH}_4\text{Cl} + \text{NaOH} \rightarrow \text{NaCl} + \text{NH}_3 + \text{H}_2\text{O}$	[4]
Question 7		
(i)	Ratio is 1:1 $\text{CH}_4 + 2\text{O}_2 \rightarrow \text{CO}_2 + 2\text{H}_2\text{O}$	[2]

(ii)	Formula - P_2Q Molecular mass - $2 \times 23 + 16$ $= 46 + 16$ $= 62$ So, 1 mole of the compound = 62 g	[2]
(iii)	(a) $CaC_2 + 2H_2O \rightarrow Ca(OH)_2 + C_2H_2$ (b) $S + \text{conc. } 6HNO_3 \rightarrow H_2SO_4 + 6NO_2 + 2H_2O$ (c) $C_2H_5COONa + NaOH \xrightarrow{CaO} C_2H_6 + Na_2CO_3$	[3]
(iv)	(a) Esterification (b) dehydrating agent (c) Fruity smell is obtained	[3]
Question 8		
(i)	(a) 2 (b) Group 2 / Alkaline earth metals (c) $Z(OH)_2$	[3]
(ii)	(a) ammonium ion  co-ordinate bond (b) nitrogen molecule [Atomic No.: N = 7, H = 1] 	[2] [1]
(iii)	(a) G (b) D (c) E (d) C	[4]