Chemistry

SECOND YEAR HIGHER SECONDARY SAY/IMP. EXAMINATION, JUNE 2016.
(Finalised Scheme of Valuation)

Subject: Part III Chemistry Code No: 2016

Qn.No	Scoring Indicators	Split Score	Total Score
1a.	Smallest repeating unit of a crystal	1	
b.	Simple cubic, Body centered cubic (B.C.C) or face centered cubic (fcc) (any two)	1	4
c.	Calculation of no. of particles of any one cubic unit cell	1	
d.	ZnS or AgBr	1	
2. a.	definition or any equation of osmotic pressure	1	
b.	$M_2 = \frac{K_b \times W_2 \times 1000}{\Delta T_b \times W_1}$		4
	$= \frac{5.12\ K\ kg\ mol^{-1} \times 1.00g \times 1000}{0.40K \times 50\ g.}$		
	$= 256\ g\ mol^{-1}$ Equation	1½	
	Substitution	1½	
3. a)	any one difference or Eg of each	2	4
b) (i)	definition of fuel cell or diagm.	1	
(ii)	$2H_2(g) + O_2(g) \rightarrow 2H_2O(l)$	1	
4. (a)	Rate $= -\frac{1}{2}\frac{\Delta[NO]}{\Delta t}$ or $-\frac{\Delta[O_2]}{\Delta t}$ or $+\frac{1}{2}\frac{\Delta[NO_2]}{\Delta t}$	1	
(b) (i)	S^{-1}	1	
(ii)	$t = \frac{2.303}{K}\log\frac{a}{a-x}$ or $\frac{2.303}{K}\log\frac{[R]_0}{[R]}$ or any correct equn.	1	

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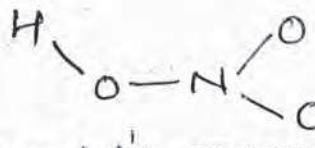
	$= \frac{2.303}{0.2303} \log \frac{100}{100-90}$ (Substitution) $= \frac{2.303}{0.2303} \log 10$ $= 10$ Seconds	1	4
5(a)	gel	1	3
(b)	Any two differences	2	
6.(a)	Aluminium	1	3
(b)	definition of calcination and roasting or eg. for both or equation for both. OR correct explanation.	1+1	
7 (a)	NO_2	1	
(b)		1	
	Ostwald's process $4NH_3(g) + 5O_2(g) \xrightarrow[500K,\ 9\ bar]{Pt/Rh} 4NO(g) + 6H_2O(g)$ $2NO(g) + O_2(g) \rightleftharpoons 2NO_2(g)$ $3NO_2(g) + H_2O(l) \rightarrow 2HNO_3 + NO\uparrow$ OR explanation	1 1 1 1 2	
	Any one property of nitric acid	1	
	~~OR~~		

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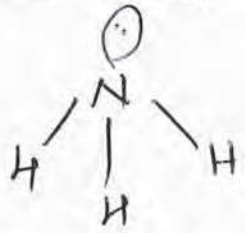
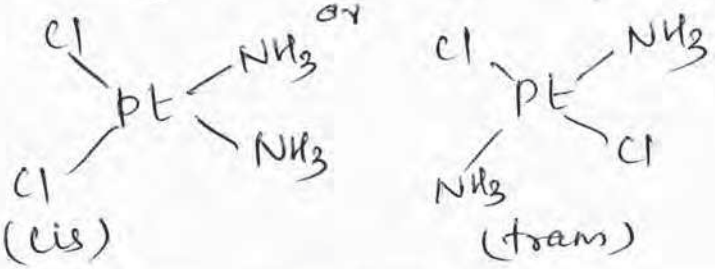
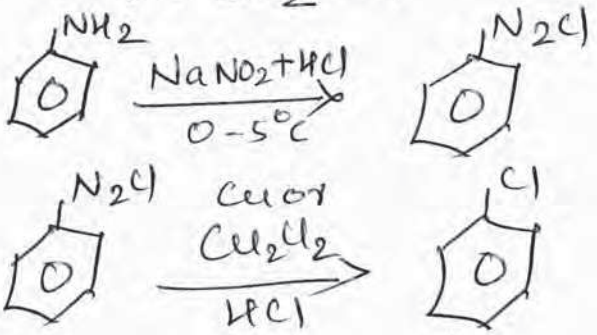
9)(i)	~~HPO_2~~ H_3PO_2	1	
(b)		1	
	Haber process	1	
	$N_2(g) + 3H_2(g) \xrightleftharpoons[700K,\ Fe\ (K_2O, Al_2O_3)]{200atm} 2NH_3(g)$	2	2
	or explanation		5
	Any one property of NH_3	1	
8(i)	any ~~one~~ properties of transition elements	1	
(ii)	any one transition metal compound OR one use	1	4
(iii)	definition of lanthanide contraction	1	
(iv)	any one consequence	1	
9(a)	Pentaammine chlorido Cobalt(III) Chloride	1	
b.(i)	primary valency +3	½	
	Secondary valency 6	½	
(ii)	geometrical isomerism or cis-trans isomerism		4
	 or (cis) (trans)	2	

Qn.No	Scoring Indicators	Split Score	Total Score
10. (a)	$CH_3-CH=CH_2$	1	
(b) (i)	Correct explanation or equation of formation of phosgene $2CHCl_3 + O_2 \rightarrow 2COCl_2 + 2HCl$	1	4
(ii)	any one difference	2	
11 (a)	2,4,6-Trinitrophenol	1	4
(b)	Any one, method of preparation of methanol " " of Ethanol	1½ 1½	
12 (a)	But-2-en-1-al	1	5
(b)	(i) $CH_3OH + HCOOK$ (ii) $CH_3-\underset{\underset{CH}{|}}{CH}-CH_2-CHO$ or $CH_3-CH=CH-CHO$ (iii) $CH_3-CH=N-NH_2$ (iv) $C_6H_5CH_2CH_3$ formulae or name of products (2×2) of any two reactions	4	
a)	2-Methyl propanoic acid	1	
b)	i) $CH_3CH_2CH_2OH$ ii) $CH_3CH_2COCl + SO_2 + HCl$ iii) $CH_3-\underset{\underset{Br}{|}}{CH}-COOH$ iv) $CH_3-CH_2-COOCH_3$ formulae or name of products of any two reaction (2×2)	4	

Qn.No	Scoring Indicators	Split Score	Total Score
13. a)	$C_6H_5NH_2 < NH_3 < C_2H_5NH_2 < (C_2H_5)_2NH$	1	
b)		1	3
		1	
	or explanation (diazotisation followed by Sand Meyer's reaction)	2	
14 a)	definition or Explanation or example	1	
b)	Vitamin A – Nightblindness Starch – Amylose Aldohexose – glucose Enzyme – Zymase (2×1)	2	3
15 a)	PVC	1	
b)	explanation or example of Biodegradable polymers	2	3
16. (i)	definition or eg.	1	
(ii)	definition or eg.	1	3
(iii)	definition or eg	1	
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