

(1)

SECOND YEAR HIGHER SECONDARY EXAMINATION JUNE 2018

SUBJECT : CHEMISTRY

CODE. NO: 2016

Qn No	Sub Qns	Answer Key/Value Points	Score	Total
1		2 or 1 or 3	1	1
2		1 or first order	1	1
3		0, zero	1	1
4		Primary	1	1
5		Vitamin K	1	1
6		Novolac ^{or} Bakelite or phenol-formaldehyde resin	1	1
7		Salvarsan or Arsphenamine	1	1
8		correct graph or explanation for positive deviation Graph for Raoult's Law	2 1	2
9		Correct equation or correct substitution for ΔT_f or ΔT_b $\Delta T_f = k_f m$ $= 1.86 \times 0.2$ $= 0.372 \text{ K}$	2	2
10		Any correct equation or preparation of Cl_2 gas	2	

1/8

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total
		$4\text{NaCl} + \text{MnO}_2 + 4\frac{1}{2}\text{SO}_4 \rightarrow \text{MnCl}_2$ $+ 4\text{NaHSO}_4 + 2\frac{1}{2}\text{H}_2\text{O} + \frac{1}{2}\text{Cl}_2$ <p>(Balanced equation not required)</p>	2	2
11		Use of any one compound	2	2
12		<p>correct explanation or equation of any one reaction</p> $\text{R-X} + 2\text{Na} + \text{X}-\text{C}_6\text{H}_5 \xrightarrow[\text{-2NaX}]{\text{ether}} \text{R}-\text{C}_6\text{H}_5$ $\text{C}_6\text{H}_5-\text{X} + 2\text{Na} + \text{X}-\text{C}_6\text{H}_5 \xrightarrow[\text{-2NaX}]{\text{ether}} \text{C}_6\text{H}_5-\text{C}_6\text{H}_5$	2 2 2	2
13	a	A or B or name of the reaction	2	2
		$\text{CH}_3\text{OH} / \text{HCOONa} / \text{HCOOK} / \text{Cannizzaro}$	2	
	b	A or B or name of the reaction	2	
		$\text{A} - \text{CH}_3 - \underset{\text{OH}}{\text{CH}} - \text{CH}_2 - \text{CHO}$ $\text{B} - \text{CH}_3 - \text{CH} = \text{CH} - \text{CHO}$ <p>or Aldol condensation</p>	2 2	

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total
14		$\text{CO}_2 + \text{R-MgX} \xrightarrow{\text{dry ether}} \text{R}-\overset{\text{O}}{\parallel}{\text{C}}-\text{OMgX}$ $\downarrow \text{H}^+/\text{H}_2\text{O}$ $\text{R}-\overset{\text{O}}{\parallel}{\text{C}}-\text{OH}$ <p>Any one correct step Any correct explanation</p>	2 2	2
15	a b	<p>RNC / isocyanide / carbodiimide</p>	2 2	2
16		<p>Any one correct structure or explanation.</p> <p>α-helix / β-pleated structure</p>	2 2	2
17.		<p>Homopolymer - correct explanation</p> <p>or</p> <p>co-polymer - correct explanation</p> <p>or</p> <p>any two examples</p>	2 2 2	2
18		<p>Correct explanation of one artificial sweetening agent</p> <p>or</p> <p>any two examples</p> <p>aspartame, alitame, sucralose, saccharin</p>	2 2	

(4)

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total
19	a	Tetra carbonylnickel (0)	2	2
	b	Potassium trioxalato ferrate (III)	2	
20		Schematic representation or explanation or any one example for each	2	2
21.		<p>correct equation</p> <p>correct substitution</p> <p>correct answer with unit</p> $d = \frac{ZM}{a^3 N_A}$ $\therefore = \frac{4 \times 107.9 \times 10^{-3} \text{ kg mol}^{-1}}{(408.6 \times 10^{-12} \text{ m})^3 \times 6.022 \times 10^{23}}$ $= 10.5 \times 10^{-3} \text{ kg m}^{-3}$ $= 10.5 \text{ g cm}^{-3}$	2 2 3 3	3
22		<p>Correct equation</p> <p>correct substitution</p> <p>correct answer with unit</p> $\log \frac{k_2}{k_1} = \frac{E_a}{2.303R} \left[\frac{T_2 - T_1}{T_1 T_2} \right]$	2 3 3	3

5

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total
		$\log 4 = \frac{Ea}{2.303 \times 8.314} \left[\frac{20}{293 \times 313} \right]$ $= 52.861 \text{ kJ mol}^{-1}$		
23		<p>Correct explanation of any one method or correct equation for any one method or correct name of any two methods or example for any two methods.</p>	3	3
24		<p>Correct explanation of any two methods Or example of any two methods Or explanation of any one method with example.</p>	3	3
25		$\text{Cu}^{2+} + 2\bar{e} \longrightarrow \text{Cu}$ $Q = It$ $= 1.5 \times 20 \times 60 = 1800 \text{ C.}$ $\text{mass of Cu deposited by 1800 C} = \frac{63.5 \times 1800}{2 \times 96500}$ $= 0.5875 \text{ g}$	2 1. 2. 3	3

(6)

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total
26		Burning of S to SO_2 } or $S + O_2 \rightarrow SO_2$ } Conversion of SO_2 to SO_3 } or $2SO_2 + O_2 \xrightarrow{V_2O_5} 2SO_3$ } Absorption of SO_3 in H_2SO_4 or $SO_3 + H_2SO_4 \rightarrow H_2S_2O_7$	2 2 2	3
27.		$Xe + F_2 \rightarrow XeF_2$ or explanation $Xe + 2F_2 \rightarrow XeF_4$ or explanation $Xe + 3F_2 \rightarrow XeF_6$ or explanation :	2 2 2	3
28		explanation of lanthanoid contraction or any two consequences	3	3
29		$RCHO \xrightleftharpoons[HCl]{R'OH} \left[\begin{array}{c} OR' \\ \\ R-CH \\ \\ OH \end{array} \right]$ Hemiacetal $\xrightleftharpoons[H^+]{R'OH} \left[\begin{array}{c} OR' \\ \\ R-CH \\ \\ OR' \end{array} \right] + H_2O$ Acetal	3 3	3
		(for any one step) Acetal		

7

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total
30	a	correct product at cathode of aq. NaCl correct product at anode	2 2	4
	b	Any explanation for electrolysis of aq. H_2SO_4 solution	2	
31		Octahedral splitting diagram (labelling not required)	4	4
32	a	$A - (CH_3 - CH_2 - CH_2)_3 B$	2	
	b	$B - CH_3 - CH_2 - CH_2 - OH$ any or explanation	2 2	4
	b	Any 1 method of preparation of methanol (eqn or explanation)	4	
33	a	$Pt, H_2 / H^+_{(1M)}$ and $H^+_{(1M)} / H_2, Pt$ Half cell reaction of Half cell reaction of anode or cathode	4 2	
	b	Correct Nernst eqn for Daniel cell $E = E^0 - \frac{0.059}{2} \log \frac{[Zn^{2+}]}{[Cu^{2+}]}$	4	

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total
		Nernst eq ⁿ for any cell/electrode	2	4

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total
1.	SHERY PAUL	7 <u>8</u>	94478	37387
2.	Bindu. B	B <u>8</u>	9847	496538
3	Aju Skania	<u>Aj</u>	14475522	12
4.	B. VIDITHA.	Jidh	94473	54898
5	Mohamed Kutty.K	Qmk	99954	39954
6	Jayasree. P.L	<u>TW</u>	944622	8659
7	Vimod. E C	Qmk	9961246	333