

DIRECTORATE OF GOVERNMENT EXAMINATION, CHENNAI - 6
HIGHER SECONDARY SECOND YEAR EXAMINATION - MAY 2022
CHEMISTRY KEY ANSWER

NOTE:

- Answers written with **Blue or Black** ink only to be evaluated.
- PART - I, choose the correct answer and write with option code. If one of them (option or answer) is wrong, then award zero mark only.

MAXIMUM MARKS : 70

PART - I

15 x 1 = 15

TYPE - A			TYPE - B		
Q.No	OPTION	ANSWER	Q.No	OPTION	ANSWER
1	c	$1s^2 2s^2 2p^6 3s^2 3p^3$	1	c	Glycine
2	a	$Al_2O_3 .nH_2O$	2	a	Methanal
3	d	30 minutes	3	a	basic
4	c	Sn/HCl	4	d	FeO
5	a	Methanal	5	c	Hydrolysis of sucrose in presence of dil.HCl
6	c	$[Fe(CO)_5]$	6	c	Sn/HCl
7	a	HPO_4^{2-}	7	d	charge carried by one mole of electron
8	a	basic	8	a	$Al_2O_3 .nH_2O$
9	c	Hydrolysis of sucrose in presence of dil.HC	9	d	30 minutes
10	c	nucleophilic addition	10	a	HPO_4^{2-}
11	c	+3	11	c	$[Fe(CO)_5]$
12	d	charge carried by one mole of electron	12	c	+3
13	c	Glycine	13	c	$1s^2 2s^2 2p^6 3s^2 3p^3$
14	d	FeO	14	a	liquid in gas
15	a	liquid in gas	15	c	nucleophilic addition

PART - II

Q.No 24 is compulsory

6 x 2 = 12

Q.No	Answer	Marks	
16	Difference between minerals and ores Any two differences	2 x1	2
17	Stability of Fe²⁺ & Fe³⁺ Fe ³⁺ is more stable Half filled d orbital (or) d ⁵ configuration (or) Electronic configuration of Fe ³⁺	1 1	 2
18	Coordination number Any one correct definition		2
19	Covalent solids Correct definition (or) entirely by covalent bonds	2 1	 2
20	Examples of First order reaction Any two examples Equation (or) Explanation	2 x 1	2
21	Limitation of Arrhenius concept Two Limitations	2 x 1	2
22	Electrophoresis Correct definition	2	2
23	IUPAC Names a. 2-methyl propan-2-ol (or) 2- methyl -2-propanol b phenyl methanol	1 1	 2
24	Identificaton of A & B compounds A = CH ₃ - N ₃ (or) Methyl azide B = CH ₃ - NH ₂ (or) Methylamine	1 1	 2

PART - III

Q.No 33 is compulsory

6 x 3 = 18

Q.No	Answer	Marks	
25	<p>Interhalogen compounds</p> <p>Correct definition</p> <p>Any one example</p>	2 1	3
26	<p>Properties of interstitial compound</p> <p>Any three properties</p>	3 x 1	3
27	<p>Arrhenius equation</p> $k = A e^{-\left(\frac{E_a}{RT}\right)}$ <p>Four terms explanation</p>	1 4 x 1/2	3
28	<p>Factors that affects electrolytic conductance</p> <ul style="list-style-type: none"> • Dielectric constant of Solvent • Viscosity of the medium • Temperature of the solution • Dilution of the solution <p>(Any three factors)</p>	3 x 1	3
29	<p>Homogeneous catalysis</p> <p>Correct definition</p> <p>Any one example (Equation (or) Explanation)</p>	2 1	3
30	<p>Preparation of diethyl ether</p> <p>Any one equation of preparation with suitable condition.</p> <p style="text-align: center;">(or)</p> <p>Equation without condition (or) Explanation only</p>	3 2	3
31	<p>Haloform reaction</p> <p>Any one correct equation</p> <p style="text-align: center;">(or)</p> <p>Explanation only</p>	3 2	3

Q.No	Answer	Marks	
32	Epimers Correct explanation Any one example	2 1	3
33	[Ag(NH₃)₂]⁺ complex Ligand : NH ₃ (or) ammine Central metal ion : Ag ⁺ (or) silver (I) ion (or) Ag (I) IUPAC name : diamminesilver(I) ion	1 1 1	3

PART - IV

5 x 5 = 25

Answer all the questions

34 a	(i) Gravity separation method Correct explanation (or) Any one example of ores	2 1	5
	(ii) Mond's process Two Correct equations with temperature (or) Equation without temperature (or) explanation only	3 2	
34 b	(i) Inert pair effect Correct definition	2	5
	(ii) Uses of boric acid Any three use	3 x1	
35 a	(i) Uses of Oxygen Any two uses	2 x1	5
	(ii) Preparation of bleaching powder Correct equation (or) Explanation only	3 2	

Q.No	Answer	Marks	
35 b	Postulates of Werner's theory Five Postulates	5 x1	5
36 a	Crystalline and amorphous solids differences Any Five differences	5 x1	5
36 b	(i) pH definition Correct definition (or) $\text{pH} = -\log_{10}[\text{H}_3\text{O}^+]$ (or) $\text{pH} = -\log_{10}[\text{H}^+]$	2	5
	(ii) Common ion effect Correct definition Any one example (Equation (or) Explanation)	2 1	
37 a	Nernst equation $x\text{A} + y\text{B} \rightleftharpoons l\text{C} + m\text{D}$ $Q = \frac{[\text{C}]^l [\text{D}]^m}{[\text{A}]^x [\text{B}]^y}$ $\Delta G = \Delta G^\circ + RT \ln Q$ $\Delta G = -nFE_{\text{cell}} \quad ; \quad \Delta G^\circ = -nFE_{\text{cell}}^\circ$ $-nFE_{\text{cell}} = -nFE_{\text{cell}}^\circ + RT \ln \frac{[\text{C}]^l [\text{D}]^m}{[\text{A}]^x [\text{B}]^y}$ $E_{\text{cell}} = E_{\text{cell}}^\circ - \frac{RT}{nF} \ln \frac{[\text{C}]^l [\text{D}]^m}{[\text{A}]^x [\text{B}]^y} \quad (\text{or})$ $E_{\text{cell}} = E_{\text{cell}}^\circ - \frac{2.303RT}{nF} \log \frac{[\text{C}]^l [\text{D}]^m}{[\text{A}]^x [\text{B}]^y} \quad (\text{or})$ $E_{\text{cell}} = E_{\text{cell}}^\circ - \frac{0.0591}{n} \log \frac{[\text{C}]^l [\text{D}]^m}{[\text{A}]^x [\text{B}]^y}$	$\frac{1}{2}$ $\frac{1}{2}$ 1 $\frac{1}{2} + \frac{1}{2}$ 1 1	5
37 b	Characteristics of catalyst Any Five characteristics	5 x 1	5

Q No	Answer	Marks	
38 a	<p>Reducing action of formic acid</p> <p>Contains both an aldehyde as well as an acid group</p> <p style="text-align: center;">(or)</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> $\begin{array}{c} \text{O} \\ \\ \text{H} - \text{C} - \text{OH} \end{array}$ <p>Aldehyde group</p> </div> <div style="text-align: center;"> $\begin{array}{c} \text{O} \\ \\ \text{H} - \text{C} - \text{OH} \end{array}$ <p>Carboxylic acid group</p> </div> </div> <p>Any one example with correct equation</p> <p style="text-align: center;">(or)</p> <p>Explanation only</p>	2	5
38 b	<p>(i) Carbylamine reaction</p> <p>Correct equation</p> <p style="text-align: center;">(or)</p> <p>Explanation only</p> <hr style="border-top: 1px dashed black;"/> <p>(ii) Gabriel phthalimide synthesis</p> <p>Correct equation</p> <p style="text-align: center;">(or)</p> <p>Explanation only.</p>	2	5
		1	
		3	
		2	