

DIRECTORATE OF GOVERNMENT EXAMINATION CHENNAI-6
HIGHER SECONDARY (FIRST YEAR) EXAMINATION - MARCH-2024
CHEMISTRY ANSWERS KEY

Note: 1. Answers written only in BLACK or BLUE should be evaluated.
2. Choose the most suitable answer PART-I from the given option alternatives and write the option code and the corresponding answer.

Govt Official Key

Q.No	Option	Answer	Q.No	Option	Answer	Marks
1.	(b)	-NO ₂	1.	(a)	rich in dissolved oxygen	1
2.	(c)	free radical	2.	(a)	6.022×10 ²⁰	1
3.	(a)	4I+2	3.	(d)	Fe ₄ [Fe(CN) ₆] ₃	1
4.	(c)	=0	4.	(a)	Square pyramidal	1
5.	(a)	rich in dissolved oxygen	5.	(a)	31.1°C	1
6.	(a)	6.022×10 ²⁰	6.	(b)	Castner's process	1
7.	(a)	31.1°C	7.	(b)	-NO ₂	1
8.	(c)	Freon-112	8.	(d)	-1	1
9.	(d)	Fe ₄ [Fe(CN) ₆] ₃	9.	(c)	Ethanol + Water	1
10.	(c)	Ethanol + Water	10.	(a)	4I+2	1
11.	(a)	Assertion is true and Reason is false	11.	(c)	free radical	1
12.	(b)	Castner's process	12.	(c)	Freon-112	1
13.	(d)	-1	13.	(c)	=0	1
14.	(a)	Square pyramidal	14.	(a)	CO ₂ H ₂	1

Check Your Marks ?

Part II
Answer any SIX Questions. Question No.24 is compulsory. 6×2=12

Q.No	ANSWER	Marks
16	Electro negativity - Correct Definition	2
17	Equivalent Mass - Correct Definition (or) Molar mass	2

11th Chemistry

Public Exam

March 2024

Official Answer Key

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- Note:** 1. Answers written only in **BLACK** or **BLUE** should be evaluated.
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PART - I

Maximum Marks : 70

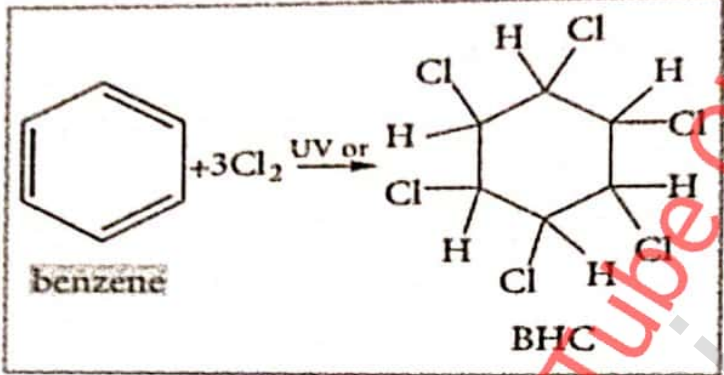
Answer All the Questions.

15×1=15

TYPE A			TYPE B			Mark
Q.No	Option	Answer	Q.No	Option	Answer	
1.	(b)	-NO ₂	1.	(a)	rich in dissolved oxygen	1
2.	(c)	free radical	2.	(a)	6.022×10 ²⁰	1
3.	(a)	4l+2	3.	(d)	Fe ₄ [Fe(CN) ₆] ₃	1
4.	(c)	=0	4.	(a)	Square pyramidal	1
5.	(a)	rich in dissolved oxygen	5.	(a)	31.1°C	1
6.	(a)	6.022×10 ²⁰	6.	(b)	Castner's process	1
7.	(a)	31.1°C	7.	(b)	-NO ₂	1
8.	(c)	Freon-112	8.	(d)	-1	1
9.	(d)	Fe ₄ [Fe(CN) ₆] ₃	9.	(c)	Ethanol + Water	1
10.	(c)	Ethanol + Water	10.	(a)	4l+2	1
11.	(a)	Assertion is true and Reason is false	11.	(c)	free radical	1
12.	(b)	Castner's process	12.	(c)	Freon-112	1
13.	(d)	-1	13.	(c)	=0	1
14.	(a)	Square pyramidal	14.	(a)	CO+H ₂	1
15.	(a)	CO+H ₂	15.	(a)	Assertion is true and Reason is false	1

Part – IIAnswer any **SIX** Questions. Question No.24 is compulsory. 6×2=12

Q.No	ANSWER	Marks
16	Electro negativity - Correct Definition	2
17	Equivalent Mass - Correct Definition (or) Equivalent mass = $\frac{\text{Molar mass}}{\text{Equivalence factor}}$	2

18	$\text{CaCO}_3 \rightleftharpoons \text{CaO} + \text{CO}_2$	2
19	Dalton's law of partial pressure Correct Statement (or) $P_{\text{total}} = P_1 + P_2 + P_3$	2
20	a) $\text{BF}_3 - \text{Sp}^2$ b) $\text{CH}_4 - \text{SP}^3$ c) $\text{PCl}_5 - \text{Sp}^3\text{d}$ d) $\text{SF}_6 - \text{Sp}^3\text{d}^2$	4x1/2
21	Green house effect – Correct Definition	2
22	Benzene to BHC  <p style="text-align: center;">(or)</p> <p style="text-align: center;">Benzene + chlorine $\xrightarrow{\text{uv}}$ Benzene hexa chloride (or) BHC (without UV or sunlight) -----> 1/2 Explanation only -----> 1</p>	2
23	Homologous series – definition One example (or) general formula -----> 1	2
24	Molality (m) = $\frac{\text{No. of moles of solute}}{\text{mass of the solvent in kg}}$ $= \frac{90/180}{2}$ $= 0.25 \text{ m}$	1 1/2 1/2

Part - III

Answer **Any Six Questions**. Question No.33 is compulsory.

6x3=18

Q.No	ANSWER	Mark
25.	Any orbital definition $3P_x$ $n=3, l=1$ $4d_{x^2-y^2}$ $n=4, l=2$	1 1 1
26.	Uses of hydrogen – any three (1+1+1)	3
27.	Periodic trend of Ionisation energy IE decreases down a group (or top to bottom) IE increases along a period (or left to right)	1/2 1/2

28.	$H_{2(g)} + I_{2(g)} \rightleftharpoons 2HI_{(g)}$ $K_c = \frac{[HI]^2}{[H_2][I_2]}$ $K_c = \frac{(2x/v)^2}{(a-x/v)(b-x/v)} \quad \text{(or)} \quad K_c = \frac{4x^2}{(a-x)(b-x)}$ <p>If $\Delta n_g = 0$, so $K_c = K_p$</p>	1 1 1
29.	Pi bond – Correct definition pictorial representation -----> 2 Correct example -----> 1	3
30.	Hess's law – correct definition (or) $\Delta H_r = \Delta H_1 + \Delta H_2 + \Delta H_3$	3
31.	Nucleophile and electrophile – any three differences	3
32.	Correct SN ² Mechanism Correct explanation only ----> 2	3
33.	A) $CH_2 - Br$ (or) 1, 2 -dibromo ethane $\begin{array}{c} \\ CH_2 - Br \end{array}$ B) $CH_2 = CH - Br$ (or) Vinyl bromide (or) Bromo ethene C) $CH \equiv CH$ (or) Acetylene (or) ethyne	1 1 1

Part - IV

Answer All the Questions :

5×5=25

Q.No	ANSWER	Marks	
34.	(i). Tabular column with simple ratio for Three elements	2	5
(a)	Simple ratio for Two elements -----> 1 Empirical formula – CH ₂ O	1	
	(ii). Spin Quantum Number Statement (or) $S = +\frac{1}{2}$ or $-\frac{1}{2}$ (OR)	2	
(b)	Similarities between Beryllium and Aluminium Any five similarities		5
35	(i) Interstitial hydrides	2	5
(a)	Correct definition Any one example	1	
	(ii) Electronic configuration: Lanthanides $4f^{1-14} 5d^{0-1} 6s^2$	1	
	Actinides $5f^{0-14} 6d^{0-2} 7s^2$ (OR)	1	
35(b)	Characteristics of Internal Energy 1) Extensive property 2) State function 3) $\Delta U = U_f - U_i$ (or) $U_2 - U_1$ 4) For cyclic process $\Delta U = 0$ 5) If $U_f < U_i$, $\Delta U = -ve$ 6) If $U_f > U_i$, $\Delta U = +ve$ (Any Five characters)	5×1	5

36 (a)	(i) Raoult's law – Correct statement (or) $P_A \propto X_A$ (or) $P_A = K X_A$ ii) Volume correction : Excluded volume for two molecules = $8 V_m$ Excluded volume for single molecules = $4 V_m$ (or) Excluded volume for 'n' molecules = nb $V_{ideal} = V - nb$ (OR)	2 1 1 1	5
	(b) Vant Hoff equation : $\Delta G^{\circ} = -RT \ln K$ $\Delta G^{\circ} = \Delta H^{\circ} - T\Delta S^{\circ}$ $-RT \ln K = \Delta H^{\circ} - T\Delta S^{\circ}$ (or) $\ln k = \frac{-\Delta H^{\circ}}{RT} + \frac{\Delta S^{\circ}}{R}$ $\frac{d(\ln k)}{dT} = \frac{\Delta H^{\circ}}{RT^2}$ $\log \frac{k_2}{k_1} = \frac{\Delta H^{\circ}}{2.303R} \left[\frac{T_2 - T_1}{T_2 T_1} \right]$	1 1 1 1 1	
37 (a)	Formation of N_2 Molecule : ❖ MO energy diagram ❖ Electronic configuration of N_2 molecule ❖ Bond order = 3 ❖ No unpaired electron (or) diamagnetic (OR)	2 1 1 1	5
	(b) IUPAC Name i) A) Propanoic acid B) 3- Pentanone or pentan 3-one C) N,N – dimethyl Propan-1-amine ii) β – elimination Correct equation without condition (alc-KOH) $1\frac{1}{2}$ correct explanation 1	1 1 1 2	
38(a)	Preparation of benzene : Acetylene - benzene i) A) Correct equation with condition without temperature (or) Correct explanation -----> 1 B) Phenol – benzene Correct equation Correct explanation -----> 1 ii) Uses of DDT - Any two uses (OR)	$1\frac{1}{2}$ $1\frac{1}{2}$ 2	5
	(b) Formation of acid rain Effects of acid rain (Any Three effects)	2 3	