

CHEMISTRY**UNIT TEST -1 KEY ANSWER****PART – I**Each question **ONE** Mark 14 x 1 = 14

Q.No.	Answer	Q.No.	Answer
1.	b	8.	c
2.	a	9.	c
3.	c	10.	a
4.	a	11.	d
5.	c	12.	c
6.	c	13.	d
7.	d	14.	d

PART-II

Answer any Seven of the following

Q. No.	Content	Mark	Total
15.	BeCl ₂ Total valence electrons = 2 + 7 x 2 = 16 $\frac{16}{8} = 2 (Q_1) + \text{Zero } (R_1)$ = x = 2 if x = 2, type of hybridisation = sp	1 1 1	3
16.	Electronic configuration of He (z=2) in the ground state 1s ² Hypothetical energy level diagram Bond order = 0, hence He ₂ not formed (Reason)	1 1 1	3
17.	(i) decreases boiling point of the compound (ii) decreases stability in water	1½ 1½	3
18.	If N _b > N _a , the molecule is stable if N _b < N _a , the molecule is unstable if N _b = N _a , the molecule is unstable	1 1 1	3

19.	 $\circ \text{Cs}^+$ $\bullet \text{Cl}^-$	1 1 1	3
	Number of chloride ions / unit = $\frac{N_c}{8} = \frac{8}{8} = 1$ Number of Cesium ion per unit = $\frac{N_b}{1} = \frac{1}{1} = 1$ Number of CsCl units per unit cell is one		
20.	$n\lambda = 2d\sin\theta$ Terms description	2 1	3
21.	Definition Types Examples	1 1 1	3
22.	Definition It is the essential and sufficient condition for a molecule to be optically active. Examples	2 1	3
23.	Three differences	3	3
24.	Definition	3	3
PART -III			
SECTION – A			
25.	One feature Any five features	1 5	5
26.	Any five features	5	5
SECTION - B			
27.	Metal excess defect explanation Examples Metal deficiency defect explanation Examples	2 ½ 2 ½	5
28.	Method set up Correct diagram Experiment details Values for NaCl	1 1 1½ 1½	5

	SECTION – C		
29.	disubstituted Benzenes structure o,m,p – angles Dipole moment order i.e o isomer>meta isomer>para isomer DPM depends on the angle between two Substituents	1 1½ 1½ 1	5
30.	Two chain forms in equilibrium Correct figure Explanation 1 : 3 diaxial interaction % in eq.mixture Energy level diagram	1 1 1 1 1	5
	PART - IV		
31. (a)	$E = h\nu$ $E = mc^2$ $h\nu = mc^2$ $\nu = \frac{c}{\lambda}$ $\lambda = \frac{h}{mc}$ $\lambda = \frac{h}{mv}$ (or) $\lambda = \frac{h}{p}$ <u>Significance</u> Two points	½ ½ ½ ½ ½ ½ 2	10
(b)	a) IF_7 Total valence electrons = $7 + (7 \times 7) = 56$ $\frac{56}{8} = 7(Q_1) + 0(R_1); x = 7$ Hybridization = sp^3d^3 b) Co_3^{2-} Total valence electrons = $4 + (3 \times 6) = 22$ Charge = -2 Total $e^- = 22 + 2 = 24$ $\frac{24}{8} = 3(Q_1) + 0(R_1) \quad x = 3$	½ ½ ½ 1½	

	Hybridization = sp^2 c) NO_2^- Total valence electrons = $5 + (2 \times 6) = 17$ Charge = -1 Total electrons = $17 + 1 = 18$ $\frac{18}{8} = 2(Q_1) + 2(R_1); \frac{2}{2} = 1(Q_2)$ $x = 2 + 1 = 3$, hybridization = sp^2	2	
32. (a)	Super conductor – (definition) and explanation with chart Application (any two)	3 2	10
(b)	Geometrical isomerism – definition Example with name Explanation about chemical and physical properties	1½ 1½ 2	
33. (a)	d, l pair of Tartaric acid with correct figure meso isomer figure d, l explanation meso explanation number of chiral atoms -2	1 1 1 1 1	10
(b)	Four types of crystals Explanation about each crystals with examples	2 3	