

INDIAN SCHOOL AL WADI AL KABIR

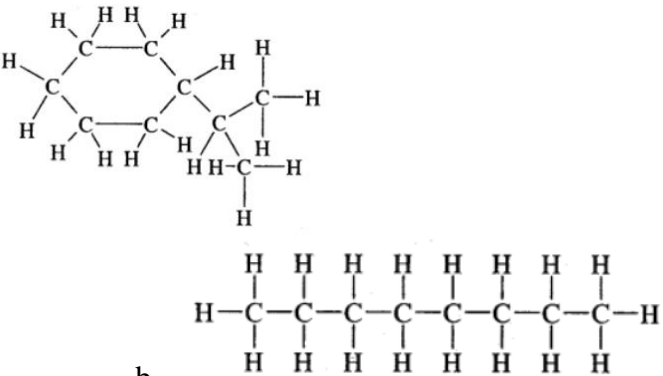
ASSESSMENT II 2022-2023

CLASS XI

CHEMISTRY

MAX MARKS: 70

1.	(c) 0.2 mol/L	1
2.	b) 27.27 %	1
3.	(a) A	1
4.	(d) First ionization enthalpy of phosphorous is less than that of Sulphur.	1
5.	(c) $n = 2, l = 2, ml = 0, ms = +1/2$	1
6.	b) CO ₂	1
7.	d. changed chemical environment	1
8.	(c) +5	1
9.	d) $\text{BaCl}_2 + \text{H}_2\text{SO}_4 \longrightarrow \text{BaSO}_4 + 2\text{HCl}$	1
10.	(c) C ₆ H ₁₂ O ₆	1
11.	a) $6.626 \times 10^{-34} \text{ m}$	1
12.	a) largest species is S ²⁻ and the smallest species is Ca ²⁺	1
13.	(c) All bonding molecular orbitals are labelled as sigma.	1
14.	(a) Increase in oxidation number	1
15.	a) Both assertion and reason are correct statements, and reason is the correct explanation of the assertion.	1
16.	D) Assertion is wrong, but reason is correct statement.	1
17.	a) Both assertion and reason are correct statements, and reason is the correct explanation of the assertion	1
18.	A) Both assertion and reason are correct statements, and reason is the correct explanation of the assertion	1
19.	i. 14 electrons	1

	 <p>b.</p>	
28.	<p>(a) Definition of an orbital (b) $n=3, l=2, m_l=-2, -1, 0, +1, +2$ (c) As it is symmetrical</p>	<p>1 $\frac{1}{2} \times 3 = 1 \frac{1}{2}$ $\frac{1}{2}$</p>
29.	<p>(i) III As the ionisation enthalpies are larger (ii) I As first ionisation enthalpy less and second ionisation high OR (iii) First ionization enthalpy of Oxygen is slightly lesser than Nitrogen Reason (iv) O^{2-} is larger in size than Mg^{2+} Reason (v) Electron gain enthalpies of noble gases is positive reason</p>	<p>$1 \frac{1}{2} \times 2 = 3$ 1 1 1</p>
30.	<p>ground state configuration, $3s^2 3p^4$ two electrons promoted to d orbitals in excited state six orbitals get hybridised to form six sp^3d^2 hybrid orbitals. Octahedral geometry</p>	3
31.	$CrO_7^{2-}(aq) + 3SO_2(g) + 2H^+(aq) \rightarrow 3Cr^{3+}(aq) + 3SO_4^{2-} + H_2O(l)$	3
32.	<p>i. sp^2 trigonal planar ii. sp^3 tetrahedral iii. sp linear</p>	$\frac{1}{2} \times 6 = 3$ marks
33.	<p>a. $\Delta x \times \Delta v = \frac{h}{4\pi m} = 0.528 \times 10^{-28} m^2 s^{-1}$</p> <p>b. i 16 ii 2 c $d < p < s$ d radial nodes, $= n - l - 1 = 3 - 1 - 1 = 1$</p> <p>Angular nodes $= l = 1$.</p> <p style="text-align: center;">OR</p>	<p>1 $1 \frac{1}{2}$ $\frac{1}{2} \times 2 = 1$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$</p>

	<p>(a) i. $n=4, l=0, m=0, s=+1/2$ or $-1/2$ ii. $n=3, l=2, m=-2$ or $+2, s=+1/2$ or $-1/2$</p> <p>(b) (i) $2p$ (ii) $2s$</p> <p>.</p>	<p>2 2 $1/2 \times 2 = 1$</p>
34.	<p>I (a) I Br F Cl (b) Pb^{4+} Pb^{2+} Pb</p> <p>II The atomic size of sodium is greater than that of magnesium The effective nuclear charge of magnesium is higher than that of sodium. Therefore After losing an electron, sodium attains the stable noble gas configuration. Hence second ionisation more than that of Mg</p> <p>III size increases the distance between the nucleus and the outermost electron increases</p>	<p>1 1 2 1</p>
35.	<p>(a) Definition of hybridisation (a) (i) Explanation with electronic configuration hybridisation and structure of CH_4 (b) (ii) Explanation with electronic configuration hybridisation and structure of C_2H_4</p> <p>OR</p> <p>I a Bond order of O_2 is higher than F_2 with the help of MOT b. NH_3 dipole moment higher than NF_3 explanation</p> <p>II H_2S Lewis structure</p>	<p>1 2 2 2 2 2 1</p>