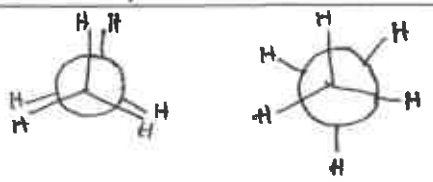
FIRST YEAR HIGHER SECONDARY EXAMINATION MARCH 2019

SUBJECT : CHEMISTRY **CODE. NO: FY 25**

Qn No	Sub Qns	Answer Key/Value Points	Score	Total
1.		Absolute zero / $-273^{\circ}C$ / 0K.	1	7
2.		NH_3	1	
3.		3-Ethyl-1,1-dimethyl cyclohexane	1	
4.		Li_2O / Equation for formation of oxide / Name of compound (Lithium oxide/Lithium monoxide)	1	
5.		Zero / $q \pm W$	1 1	
6		$\frac{h}{4\pi}$	1	
7.		0.052 / 5.2×10^{-2}		
8.		 figures without 'H' also may be considered as correct answer	1+1	2
9.		$pH = -\log_{10}[H_3O^+]$ substitution $pH = -\log[2\times10^{-2}]$	1 1 1	2
10		$AlCl_3$ or $BeCl_2$ Fajan's rule Covalent character increases as charge on cation increases	2 2 2	2

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11.		Correct explanation Correct Diagrammatic representation/Eqn	1+1 1+1	2
12.		Black Body radiation, photoelectric effect, Atomic spectra; Hot body radiation, Line spectrum, Reflection, Compton effect One correct point	2	2
13		General trend of $\Delta_{eg}H$ in the periodic table Variation of trend in EGE in the case of Cl and F Explanation related to EGE Definition of electron gain enthalpy	2 2 2 1	2
14.		$K_c = \frac{[NO]^4\,[H_2O]^6}{[NH_3]^4\,[O_2]^5}$ $K_c' = K_c^2$	2 2	2
15.		Correct products – Methanal and Ethanal Explanation of the reaction $CH_3-CH=CH_2 + O_3 \rightarrow CH_3-\underset{\underset{O-O}{|}}{CH}-CH_2$ $\xrightarrow{Zn/H_2O} CH_3CHO + CH_2O$	1x2 2 2 2	2
16		Correct structure 4, B–H bonds / 2 centre 2e⊖ bond/normal Covalent bond 2, B–H–B bonds / 3 centre 2e⊖ bond / multi centred bond Banana bond	2 1 1	2

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17		Definition of spontaneous process	1	2
		$\Delta G_1 < 0$ or ΔG = −ve	1	
18		$M = \frac{dRT}{P}$	1	2
		$\frac{M_1}{M_2} = \frac{d_1}{d_2}$	1	
		$\frac{32}{16} = \frac{d_1}{d_2}$	1	
		$d_1 = 2d_2$	1	
		density of O_2 = 2 × density of CH_4	1	
		Density relation = 2 : 1	1	
		Calculation using $d = \frac{\text{Molar mass}}{\text{Molar volume}}$	1	
19.		Correct Lewis structure of O_3	2	2
		Calculation of formal charges of O atoms	2	
		Equation of formal charge	1	
20		Electronic configuration of Al & S	1	2
		Correct group or period of Al and S	1	
		Al_2S_3	1	
21		Two reasons for anomalous behaviour of Li	2	3
		Two points of similarities b/w Li & Mg	2	
22.		Hydrolysis of three types of salts	3	3
		Correct examples for each type	3	
		Correct description of pH of resulting solution (Acidic/ Basic/ Acidic or basic depending on concentration	3	
		Strong Acid + Strong base → No Hydrolysis	1	

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23		Explanation of acid rain Correct description or equation for the formation of acid rain Two Harmful effects	1½ 1½ 1½	3
24		Hydrogenation of alkynes – Eqn. cis and trans isomers of alkenes representation	3 3	3
25		Balanced Equation $N_2 + 3H_2 \rightarrow 2NH_3$ Calculation of no. of moles of N_2 and H_2 Correct prediction of Limiting reagent as H_2 Correct calculation and result with unit Definition of limiting reagent	1 1 1 1 1	3
26		M.O. electronic configurations or Diagrams of N_2 or O_2 Correct comparison of stability Bond Order calculation or formula or definition Correct comparison of magnetic behaviour	2 2 2 2	3
27		Two reasons (two faulty assumptions of Kinetic theory) Correct conditions of T+P Correct definition of Boyle point	2 2 2	3

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28.		Correct structure of H_2O_2	2	
		One method of preparation of H_2O_2	2	3
		One chemical reaction of H_2O_2	2	
29.		Assigning oxidation states of atoms	3	3
		Related Equation	3	
30.		Name of four quantum numbers	2	4
		Two quantum numbers (names and explanation)	4	
		Pauli's Exclusion principle – statement	2	
		Correct explanation for the importance of quantum numbers in Pauli's principle	2	
31		Correct definition of silicones	2	4
		Correct equations	4	
		By adding $(CH_3)_3SiCl$ which blocks the ends of the equation showing this	2	
32.		Name of four structural isomerism	4	4
		Explanation of two structural isomerism with examples	2×2	
		Definition of structural isomerism	1	

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33.	(i)	Correct statement of the Hess's law	4	4
	(ii)	Correct solution to the problem (or) Related equations	4 4	

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