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# ANSWER KEY

Imp September  
FIRST YEAR HIGHER SECONDARY EXAMINATION ..... 2021

PART-~~IV~~ III

SUBJECT: ..... CHEMISTRY .....

CODE NO: FY-225

VERSION: ...

60 SCORES

2 HOURS

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score	
1.		Two results of photoelectric effect	2	2	
2.	(i)	2P	1	2	
	(ii)	5S	1		
3.		Correct graph with labelling	2	2	
4.		Correct equation Explanation of terms	1 1	2	
5.		Statement of Hess's law	2	2	
6.		Definition of Buffer solution Any one example	1 1	2	
7.	(i)	Definition of conjugate acid-base pair	1	2	
	(ii)	$H_3O^+$	1		
8.		Compound	Use	2	
	(i)	Calcium sulphate	(D) Dentistry		1/2
	(ii)	Sodium bicarbonate	(C) Antiseptic		1/2
	(iii)	Calcium oxide	(B) Purification of sugar		1/2
	(iv)	Sodium carbonate	(A) Water softening	1/2	

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9.	(i) (ii)	4-Ethyl-2-methylhexane 5-Oxohexanoic acid	1 1	2
10.		Any One difference between homolytic and heterolytic bond cleavages	2	2
11.		Newman projections - Eclipsed Staggered	1 1	2
12.		But-2-ene - cis isomer trans isomer	1 1	2
13.		Statement of law of multiple proportions Illustration	1 2	3
14.	(i) (ii)	No. of moles of $\text{CO}_2 = 1 \text{ mol}$ Mass of $\text{CO}_2 = 44 \text{ g}$ $\text{O}_2$ is the limiting reagent	1 1 1	3
15.	(i) (ii)	Statement of modern periodic law Any 2 properties of transition elements	1 2	3
16.	(i) (ii)	Correct definition Correct explanation	1 2	3
17.	(i) (ii)	Correct definition Correct explanation	1 2	3
18.	(i) (ii)	Statement of Boyle's law $P_1 V_1 = P_2 V_2$ $1.2 \times 120 = P_2 \times 180$ . So, $P_2 = 0.8 \text{ bar}$	1 1 1	3

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
19.	(i) (ii)	2 assumptions of kinetic molecular theory Correct definition or equation	2 1	3
20.	(i) (ii)	Definition of extensive and intensive properties (B) Molar volume	2 1	3
21.		$\Delta G = \Delta H - T\Delta S$ Correct substitution with answers Since $\Delta G$ is +ve, the reaction is non-spontaneous	1 1 1	3
22.		Correct balanced equation	3	3
23.	(i) (ii)	Definition of disproportionation reaction It is a disproportionation reaction Justification	1 1 1	3
24.	(i) (ii)	(c) CO and H <sub>2</sub> Correct explanation with chemical equation	1 2	3
25.	(i) (ii)	One disadvantage of hardness of water Correct explanation	1 2	3
26.		Explanation of Solvay process with chemical equation.	3	3
27.	(i) (ii)	Any one reason for anomalous property 2 anomalous properties of lithium	1 2	3

Qn. No.	Sub Qns	Answer Key / Value Points	Score	Total Score
28.	(i)  (ii)	One difference between chain isomerism and position isomerism.  $\text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{OH}$ $\text{CH}_3 - \underset{\text{OH}}{\text{CH}} - \text{CH}_2 - \text{CH}_3$	2  $\frac{1}{2}$  $\frac{1}{2}$	3
29.	(i)  (ii)	Any 2 observations  2 postulates of Rutherford's atom model	2  2	4
30.	(i)  (ii)	Correct statement  Mathematical expression  $\lambda = \frac{h}{mv}$ $= \frac{6.626 \times 10^{-34}}{0.1 \times 10}$ $= 6.626 \times 10^{-34}$	1  1  1  $\frac{1}{2}$  $\frac{1}{2}$	4
31.	(i)  (ii)	(B) Bent  Any 3 postulates	1  3	4
32.	(i)  (ii)	M.O. confn. of $\text{O}_2$ molecule  Reason for paramagnetic character  $\text{B.O} = \frac{1}{2} [N_b - N_a]$ $= \frac{1}{2} [10 - 6] = 2$	1  1  1  1	4
33.	(i)  (ii)	Statement of Le Chatelier's principle  Correct explanation	1  3	4

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
34.	(i)	Definition of pH	1	4
	(ii)	$pH = -\log [H^+]$	1	
		$= -\log (3 \times 10^{-12}) = 11.52$	1	
		The solution is basic in nature	1	
35.	(i)	(C) Fullersene	1	4
	(ii)	Correct explanation	3	
36.	(i)	One industrial production of diborane	1	4
	(ii)	Borazine or $B_3N_3H_6$	1	
	(iii)	Structure of diborane	2	
37.		Explanation of detection of nitrogen	4	4
38.	(i)	Explanation with equation	2	4
	(ii)	Explanation with equation	2	
39.	(i)	$C_2H_2$ or ethyne or acetylene	1	4
	(ii)	Definition of electrophilic substitution	1	
		Any one electrophilic substitution reaction with chemical equation	2	
40.	(i)	(B) CO	1	4
	(ii)	Correct definition	2	
	(iii)	Any one application of Green Chemistry	1	