

**ANSWER KEY**  
**FIRST YEAR HIGHER SECONDARY EXAMINATION SEPTEMBER 2021**  
**PART III**  
**CHEMISTRY**

CODE NO: FY225

2 HOURS

60 SCORE

QN. NO	SUB QNS.	ANSWER KEY/VALUE POINTS	SCORE	TOTAL SCORE
1	a	3p	1	2
	b	5s	1	
2		Cu-1s <sup>2</sup> 2s <sup>2</sup> , 2p <sup>6</sup> , 3s <sup>2</sup> , 3p <sup>6</sup> , 3d <sup>10</sup> , 4s <sup>1</sup> /a	2	2
	,	Stability of completely filled orbital	2	
3		Triagonal Planr	1	2
		180 <sup>0</sup>	1	
4		Any Two postulates(1 score each)	2	2
5		Statement of Hess'slaw/Explanation/Equation/diagram	2	2
6	a	Kc=[NH <sub>3</sub> ] <sup>2</sup> / [N <sub>2</sub> ] [H <sub>2</sub> ] <sup>3</sup>	2	2
		KC=[HI] <sup>2</sup> / [H <sub>2</sub> ] [I <sub>2</sub> ]	2	
7		Definition of Buffer Solution/any one example	2	2
8	(i)	Sodium bicarbonate/Sodium Hydrogen carbonate/NaHCO <sub>3</sub>	1	2
	(ii)	Sada Ash/Na <sub>2</sub> CO <sub>3</sub>	1	
9		1-Propanol/Molecular Formula	2	2
		2-Propanol/Molecular Formula	2	
10		$  \begin{array}{ccccccc}  \text{H} & \text{H} & \text{H} & \text{H} & \text{H} & & \\    &   &   &   &   & & \\  \text{H} - \text{C} & - & \text{C} & - & \text{C} & - & \text{C} & - & \text{C} - \text{H} \\    &   &   &   &   & &   & & \\  \text{H} & \text{H} & \text{C} & - & \text{H} & \text{H} & \text{H} & & \text{H} \\  & &   & & & & & & \\  & & \text{H} & & & & & &   \end{array}  $	2	2
		$  \begin{array}{c}  \text{CH}_3 - \text{CH} - \text{CH}_2 - \text{CH}_2 - \text{CH}_3 \\    \\  \text{CH}_3  \end{array}  $	2	
11	(i)	C <sub>6</sub> H <sub>6</sub> /Benzene/Structure of benzene	1	2
	(II)	CH <sub>3</sub> --CH <sub>3</sub> /Ethane/Wurtz reaction	1	
12		cis But 2-ene/Structure	1	2
		tran But 2-ene/Structure	1	
<b>6X2=12 Scores</b>				
13	(1)	6.023X10 <sup>23</sup>	1	3
	(11)	n=given mass/molecular mass n=180/18=10 /10	1	
			2	

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14	(1)	Definition of Molarity/formula	1	3
	(11)	Statement of Multiple Propotion/Illustration	2	
15	(a)	Increase in the number of Shells	2	3
	(b)	More electron repulsion in smaller 2p orbitals of F/Small size of F/Large 3p orbital of Cl/any correct explanation	2	
16	(1)	Name of any two blocks in the perioidic table	1	3
	(11)	Statement of Modern Periodic law	2	
17	(1)	Definition of bond order or equation	1	3
	(11)	MO configuration /diagram	1	
		Bond order is zero	2	
18	(1)	One	1	3
	(11)	$P_1V_1/T_1 = P_2V_2/T_2$	1	
		$P_2 = \frac{760 \times 600 \times 293}{660 \times 298}$ $P_2 = 679.3 \text{ mm of Hg} / 679.3$	2 1	
19	(i)(a)	Boyle's Law	1	3
	(b)	Statement of Boyle's Law/Mathematical expression	2	
	(ii)	$PV = nRT$	1	
20	(1)	Open System	1	3
	(11)	Statement of First law of thermodynamics/Equation	2	
21	(1)	Definition of Extenssive Property	2	3
	(11)	Mass/Volume	2	
22	(1)	Zero	1	3
	(11)	Oxidising Agent- $\text{Cu}_2\text{O}/ \text{Cu}$ in $\text{Cu}_2\text{O}$	2	
		Reducing Agent- $\text{Cu}_2\text{S}/ \text{S}$ in $\text{Cu}_2\text{S}/\text{S}$	2	
		Correct Oxidation Number of Elements	1	
23	(i) a	$\text{Mn(II)O}$	1	3
	(b)	$\text{Fe(II)O}$	1	
	(ii)	Oxidation -increase in Oxidation Number	1	
		Reduction- Decrease in Oxidation Number	1	
24	(i)	$\text{CO} + \text{H}_2/ (\text{A})$	1	3
	(ii)	One difference between hard water and soft water	1	
	(ii)	To prevent decomposition of $\text{H}_2\text{O}_2$ in presence of light	1	
25	(i)	Definition of molecular hydride	1	3
	(ii)	Any two correct classification	2	
26	(i)	K/Rb/Cs	1	3
	(ii)	Any one anomalous property of Li	2	

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27	(i)	Lime stone- Calcium Carbonate Slacked lime-calcium Hydroxide Plaster of Paris-Calcium sulphate $1/2 H_2O$ Quick lime- Caluim oxide (Any two correct answer)	2	3
	(ii)	To slow down the setting of cement	1	
28	(i) (a)	2-methyl pentan-3-ol	2	3
	(b)	4- Oxo Pentanoic acid	2	
	(ii)	-Cl/ -NH <sub>2</sub>	1	
<b>8X3=24</b>				
29	(i)	Statement of Heisenberg's uncertainty principle or equation	2	4
	(ii)	Any two spectral lines of Hydrogen atom	2	
30	(i)	Any 2 conclusions/2 observations/explanation of experiment/explanation of Rutherford atom model/Diagram	2	4
	(ii)	One demerit of Rutherford atom model	2	
31	(i)	Any two postulates of VSEPR Theory	2	4
	(ii)	Intermolecular hydrogen bond or example	1	
		Intramolecular hydrogen bond or example	1	
32	(1)	Sp <sup>3</sup> / (C)	1	4
	(ii)	One characteristic/ definition of hybridisation	2	
	(iii)	MO configuration/ diagram of oxygenmolecule/ unpairedelectron	2	
33	(1)	No effect by change in pressure/equal number of moles of gaseous reactants and products	2	4
	(ii)	Lechatler's principle	1	
		Statement of Lechatler's principle	2	
34	(i)	Arrhenius concept of acid/example	1	4
		Arrhenius concept of base/example	1	
	(ii)	Conjugate acid of H <sub>2</sub> O-----H <sub>3</sub> O <sup>+</sup>	1	
	(a)	Conjugate base of H <sub>2</sub> O-- ---OH <sup>-</sup>		
	(b)	Conjugate acid of NH <sub>3</sub> -----NH <sub>4</sub> <sup>+</sup> Conjugate base of NH <sub>3</sub> -----NH <sub>2</sub> <sup>-</sup>	1	
35	(1)	B <sub>2</sub> H <sub>6</sub> /Structure of diborane/Hydrides of Boron	2	4
	(ii)	Correct explanation of structure of diborane	2	
	(iii)	Glass	1	
		Cement	1	
36	(i)	Due to the formation of carboxy haemoglobin	2	4
	(ii)	Any two crystalline allotropes of carbon (graphite,diamond)	2	

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37	(1)	N/S/Halogen/P	2	4
	(ii)	One difference/representation of homolysis and heterolysis	2	
38	(a)	1-bromopropane /structure	2	4
		2-bromopropane /structure	2	
	(b)	2-bromopropane /structure	2	
	(c)	Markonikove Rule	1	
Statement of Markonikove rule		2		
39	(i)	Newman's formula of staggered or eclipsed form of ethane	2	4
	(ii)	Staggered form/Correct diagram	2	
		Less torsional strain/Less electron repulsion	2	
40	(1)	Any two green house gases	2	4
	(ii)	Any two harmful effects of acid rain	2	

**6X4=24 Scores**

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6	157501	BINDU C	9446430086
7	157464	PREETHA S	9446109653
8	209505	RAJESH SOMAN	7025174788
9	399699	SHEELAMMA DOMINIC	9446583665
10	890723	AMRITHA MANUAL	8075705341
11	461596	GEETHA V	9847878455
12	774763	HASIFA K	9400552776
13	449709	VINURAJAN P K	9447952173
14	433633	KUMARI MINI	9446112775
15	414778	JAYAMOL THOMAS	9495161092
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