ANSWER KEY

SECOND YEAR HIGHER SECONDARY EXAMINATION ..MARCH..... 2024

PART-I/II/III

SUBJECT: ...CHEMISTRY.....

CODE NO: **SY 525**

VERSION:..U....

...60... SCORES

....2.... HOURS

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
1		$E_{ext} > E_{cell}$ or (c)	1	1
2.		S^{-1} or (b)	1	1
3.		4	1	1
4.		phosgene / carbonylchloride / $COCl_2$	1	1
5.		glycosidic linkage/oxide linkage/representation of linkage	1	1
6.		Any two applications of Henry's law	1×2	2
7.		$E^\circ_{cell} = E^\circ_{Cu^{2+}/Cu} - E^\circ_{Zn^{2+}/Zn}$ $= 0.34V - (-0.76V) = 1.1V$	1 1	2
8.		Any two differences between order and molecularity	1×2	2
9.		correct reason for effect of temperature on rate constant. $K = A e^{-Ea/RT}$ / Any correct form of Arrhenius equation	1 1	2
10.	(i)	CH_3CH_2Cl	1	2
	(ii)	CH_3F	1	
11.		Two steps of S_N1 mechanism	1×2	2
12.		Zaitsev rule Statement of the rule	1 1	2

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
13.		correct reason for the solubility	2	2
14.	(i)	ammoniacal silver nitrate solution	1	2
	(ii)	CH_3CHO	1	
15.		CH_3NH_2	1	2
		Correct reason for basicity of CH_3NH_2	1	
16.		Definition of ideal solution	1	3
		example for ideal solution	1	
		$\Delta_{mix}H = 0$, $\Delta_{mix}V = 0$	$\frac{1}{2}+\frac{1}{2}$	
17.	(i)	Definition of molarconductivity	1	3
		variation of Λ_m with concentration/ Graphical representation	1	
	(ii)	Kohlrausch law/statement of law	1	
18.	(i)	Definition of halflife period	1	3
	(ii)	$t_{1/2} = \frac{0.693}{K}$	1	
		$= \frac{0.693}{5.5\times10^{-14}\,s^{-1}} = 1.26\times10^{13}\,s$	1	
19.	(i)	Ti^{3+}, Cr^{3+}	1+1	3
	(ii)	correct reason for formation of colour	1	
20		Definition of lanthanoid contraction	1	3
		Any two consequences	1×2	
21.		for correct hybridisation scheme	2	3
		correct geometry and magnetic behaviour	$\frac{1}{2}+\frac{1}{2}$	
		(d^2sp^3 hybridisation only – 1 score)		

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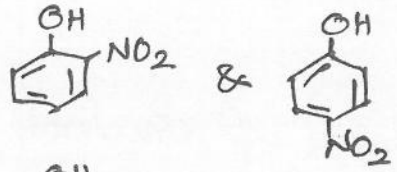
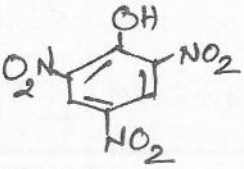
22	(i)	(a) $[Co(NH_3)_5Cl]Cl_2$	1	
		(b) $K_3[Fe(CN)_6]$	1	3
	(ii)	(a) / $[Co(NH_3)_5Cl]Cl_2$	1	
23.	(i)		1+1	3
	(ii)	 or IUPAC name / picric acid	1	
24.	(i)	A =  or toluene	1	
		Etard reaction	1	3
	(ii)	 or Benzoic acid	1	
25.		Description of Hinsberg test for $1^0, 2^0, 3^0$ amines	1×3	3
26.	(i)	Globular Protein	1	
	(ii)	example for globular protein	½	3
		Fibrous protein	1	
		example for fibrous protein	½	
27.	(i)	Definition of colligative properties / (Name of any two colligative properties)	1	
	(ii)	$\Delta T_b = 354.11\,K - 353.23\,K = 0.88\,K$	1	
		$M_2 = \frac{K_b \times W_2 \times 1000}{\Delta T_b \times W_1}$	1	4
		$= \frac{2.53 \times 1.8 \times 1000}{0.88 \times 90} = 58\,g\,mol^{-1}$	1	

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
28	(i)	for the diagram of H_2-O_2 fuel cell	1	
	(ii)	equation for anode reaction	1	4
		equation for cathode reaction	1	
		(Overall cell reaction only - 1 score)		
	(iii)	Any two advantages of fuel cells	$\frac{1}{2}$ x 2	
29.		Explanation of four types of structural isomerism	$\frac{1}{2}$ x 4	4
		Example for each type of isomerism	$\frac{1}{2}$ x 4	
30.	(i)	for two step manufacture of ethanol from molasses	1 x 2	
	(ii)	correct answer for denaturation	1	4
	(iii)	$CH_2 = CH_2$ / ethene	1	
31.	(i)	correct description of Cannizaro reaction	2	4
	(ii)	correct description of Stephen reaction	2	

1. Bindu. C 9446430086.
2. ~~ANIL D~~ 9447585458
3. Jayaram N 9447015570
4. Nidheesh Anandavilasam 9447796426
5. V. Geetha 9495633402
6. Muhammed Shareef. K 9633908705