CHEMISTRY TEST ANSWERSHEET CLASS XII (SEPTEMBER 2023)

Q NO	CHAPTER	HEADING OF QUESTION	CORRECT ANSWER	EXPLAINATION	% OF STUDENTS ATTEMPTED CORRECTLY
01	COORDINATION CHEMISTRY	The position of ligands in the formula of a mononuclear coordination entity depends on which of the following	A	Explanation: The listing of ligands in the formula of mononuclear coordination entities is according to alphabetical order, including abbreviated ligands. It does not depend on the atomicity, denticity or the charge on the ligand.	73.10
02	COORDINATION CHEMISTRY	Identify the magnetic nature of the complex from its electronic configuration as shown	B	Explanation: There is one unpaired electron in the 3d orbitals. The presence of unpaired electrons makes a complex paramagnetic. In this case, since only 1 unpaired electron is present, it is a weak paramagnet.	60.50
03	COORDINATION CHEMISTRY	Identify the correct geometry and magnetic behaviour of the complex from the configuration shown	A	Explanation: The hybridisation type of the complex is dsp2 which corresponds to square planar geometry. Because there are no unpaired electrons, it is diamagnetic.	69.10
04	COORDINATION CHEMISTRY	Assertion: Linkage isomerism arises in coordination compounds containing ambidentate ligand. Reason: Ambidentate ligand has two different donor atoms.	A	Assertion and reason both are correct and the reason is the correct explanation of assertion. Linkage isomerism arises in coordination compounds containing ambidentate ligands because ambidentate ligand has two different donor atoms. e.g. CN, SCN, NCS	79.20
05	COORDINATION CHEMISTRY	Assertion: [Ni(CO)4] has square planar geometry while [Ni(CN)4]4- has tetrahedral geometry Reason: The geometry of any complex depends upon the nature of the ligands attached.	D	NO EXPLAINATION	38.20
06	HALO ALKANES AND HALO ARENES	*Assertion :* SN2 reaction of an optically active aryl halide with an aqueous solution of KOH always gives an alcohol with opposite sign of rotation. *Reason :* SN2 reactions always proceed with inversion of configuration.	D	Assertion is false, because aryl halides do not undergo nucleophilic substitution under ordinary conditions. This is due to resonance, because of which the carbon– chlorine bond acquires partial double bond character, hence it becomes shorter and stronger and thus cannot be replaced by nucleophiles. However Reason is true.	44.80
07	HALO ALKANES AND HALO ARENES	Assertion : Alkylbenzene is not prepared by Friedel-Crafts alkylation of benzene. *Reason :* Alkyl halides are less reactive than acyl halides..	C	Alkyl halides give polyalkylation products.	10.70
08	HALO ALKANES AND HALO ARENES	Identify 'X' in the following reaction.	B	Explanation: This is an example of Swarts reaction to prepare alkyl fluorides from alkyl bromides or chlorides. The main reagent is a metallic fluoride to exchange the F atom with the haloalkane.	88.10
09	HALO ALKANES AND HALO ARENES	What is the correct order of reactivity of alcohols with a given haloacid?	B	Explanation: When more number of electron donating groups are bonded to the C atom attached to the OH group, the polarity of C-OH bond increases. Thus, the reactivity of the alcohol increases.	82.90
10	HALO ALKANES AND HALO ARENES	What will be the product of the following reaction?	B	Explanation: This is a method of preparation of alkyl chloride from alchol by heating it with HCl. Only the alcoholic OH group will be substituted by Cl. The phenolic OH will reamain as it is.	18.40