BLUE PRINT
PRACTICE PAPER
CHEMISTRY-XII

S.No.	Unit	VSA (1 mark)	SA I (2 mark)	SA II (3 mark)	LA (5 mark)	Total
1	Solid State		4 (2)			4 (2)
2	Solutions				5 (1)	5 (1)
3	Electrochemistry		2 (1)	3 (1)		5 (2)
4	Chemical Kinetics	1 (1)	4 (2)			5 (3)
5	Surface Chemistry	1 (1)		3 (1)		4 (2)
6	General Principles and Processes of Isolation of Elements			3 (1)		3 (1)
7	p-Block elements	1 (1)	4 (2)	3 (1)		8 (4)
8	d and f- Block elements				5 (1)	5 (1)
9	Coordination Compounds	1 (1)	2 (1)			3 (2)
10	Haloalkanes and Haloarenes	1 (1)		3 (1)		4 (2)
11	Alcohols, Phenols and Ethers	1 (1)		3 (1)		4 (2)
12	Aldehydes, Ketons and Carboxylic Acids	1 (1)			5 (1)	6 (2)
13	Organic compounds containing nitrogen		4 (2)			4 (2)
14	Biomolecules	1 (1)		3 (1)		4 (2)
15	Polymers			3 (1)		3 (1)
16	Chemistry in Everydaylife			3 (1)		3 (1)
	Total	**8 (8)**	**20 (10)**	**27 (9)**		**70 (30)**

Practice Paper for AISSCE, 2012

Time: 3 hours **Max. Marks: 70**

General Instructions:-

1. All questions are compulsory.
2. Question nos. 1 to 8 are very short answer questions and carry 1 mark each.
3. Question nos. 9 to 18 are short answer questions and carry 2 marks each.
4. Question nos. 19 to 27 are also short answer questions and carry 3 marks each.
5. Question nos. 28 to 30 are long answer questions and carry 5 marks each.
6. Use log tables if necessary, use of calculators is not allowed.

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Q.1	A plot of rate of reaction (y-axis) versus concentration of reaction (x-axis) gives a line parallel to x-axis. What is the order of the reaction?	1
Q.2	What is "occlusion"?	1
Q.3	Give the disproportion reaction of H_3PO_3.	1
Q.4	Give IUPAC name of linkage isomer of $[Pt(NH_3)_2(H_2O)(NO_2)]Br$	1
Q.5	What is meant by racemic mixture?	1
Q.6	Write the IUPAC name of the following compound:- CH_3-O-CH_2-CH(OH)-CH_2-CHO	1
Q.7	Name the reagent which is used to convert phenol into picric acid.	1
Q.8	What are reducing sugars?	1
Q.9	An element has a body centred cubic structure with a cell edge of 288 pm. The density of the element is 7.2 g/cc. How many atoms are present in 208 g of the element?	2
Q.10	In an ionic compound the anion (N^-) forms face centred cubic type of packing. While the cation (M^+) ions occupy one third of the tetrahedral voids. Deduce the empirical formula of the compound and the co-ordination number of (M^+) ions.	2
Q.11	Discuss the variation in molar conductivity with concentration for strong and weak electrolyte.	2
Q.12	Distinguish between order and molecularity of a reaction.	2
Q.13	A certain reaction is 50% complete in 20 minutes at 300 K and the same reaction is again 50% complete in 5 minutes at 350 K. Calculate the activation energy if it is a first order reaction.	2
	OR	
	The half life for decay of radioactive ^{14}C is 5730 years. An archaeological artefact containing wood has only 80% of the ^{14}C activity as found in living trees. Calculate the age of the artefact.	2
Q.14	Arrange the following in order of property indicated for each set:- (i) F_2, Cl_2, Br_2, I_2 ------decreasing bond dissociation enthalpy (ii) NH_3, PH_3, AsH_3, SbH_3 ------increasing base strength	2
Q.15	Complete the following reaction equations:- (i) Cl_2 (g) + NaOH (aq) ---------→ Hot & conc. (ii) P_4 + NaOH + H_2O --------→	2
Q.16	$[Fe(H_2O)_6]^{3+}$ is strongly paramagnetic whereas $[Fe(CN)_6]^{3-}$ is weakly paramagnetic. Explain.	2
Q.17	Write short notes on the following:- (i) Carbyl amine reaction (ii) Hoffmann's bromamide reaction	2
Q.18	Accomplish the following conversions:- (i) Aniline to benzoic acid (ii) Chlorobenzene to p-chloro aniline	2

Q.19 Calculate the potential (emf) of the cell: 3

$Cd / Cd^{2+}(0.10M)$ // $H^{+}(0.20M) / Pt, H_2(0.5\ atm)$

(Given : E^0 for Cd^{2+}/Cd= -0.403 V, R= 8.314 J K-1 mol-1, F= 96500 C mol^{-1})

OR

Calculate the standard free energy change and maximum work obtainable for the reaction occurring in the cell: 3

$Zn(s) / Zn^{2+}$ (1M) // Cu^{2+} (1M) / Cu (s)

(Given: E^0 for Zn^{2+}/Zn = -0.76 V and E^0 for Cu^{2+}/Cu = +0.34 V)

Also calculate the equilibrium constant for the reaction.

Q.20 What happens when:- 3

(a) A beam of light is passed through As_2S_3 sol?

(b) KCl is added to $Fe(OH)_3$ sol?

(c) An electric current is passed through a colloidal solution?

Q.21 (a) State the role of silica in the metallurgy of copper. 1

(b) Outline the principle of refining of metals by the following methods:- 2

(i) Zone refining

(ii) Vapour phase refining

Q.22 Account for the following:- 3

(i) On addition of ozone gas to KI solution, violet vapours are obtained.

(ii) ICl is more reactive than I_2.

(iii) Solid PCl_5 exhibits some ionic character.

Q.23 Explain the following:- 3

(i) Haloalkanes react with KCN to form alkyl cyanide as main product while AgCN forms isocyanide as the major product.

(ii) Allyl chloride is hydrolysed more readily than n-propyl chloride.

(iii) Haloarenes are much less reactive than haloalkanes towards nucleophilic substitution reactions.

Q.24 (a) Explain the mechanism of acid catalysed dehydration of an alcohol forming an alkene. 2

(b) Write the products obtained by the reaction of methoxybenzene with HI. 1

Q.25 (a) Write the important structural diggerences between DNA and RNA 2

(b) What is isoelectri point? 1

Q.26 (a) What is a biodegradable polymer? Give an example of a biodegradable polymer. 2

(b) Write the names and structures of the monomers of the following polymers:- 1

(i) Neoprene

(ii) Nylon-6

Q.27 Explain the following terms with suitable examples:- 3

(i) Tranquilizers

(ii) Tincture of iodine

(iii) Artificial sweeteners

Q.28 (a) State Raoult's law for solutions containing a non volatile solute. 1

(b) Sodium chloride or calcium chloride is used to clear snow from the roads. Why? 1

© 0.5 g of KCl was dissolved in 100 g water and the solution originally at 20 ^{0}C, froze at -0.24 ^{0}C. Calculate the percentage ionization of salt. K_f per 1000 g of water = 1.86 K. 3

OR

(a) State Henry's law and write its two applications. 2

(b) 19.5 g of CH_2FCOOH is dissolved in 500 g of water. The depression in freezing point observed is 1.0 ^{0}C. Calculate the Van't Hoff factor and dissociation constant of fluroacetic acid. K_f for water is 1.86 K Kg mol^{-1}. 3

Q.29 Assign reasons for the following:- 5

(a) The transition metals and many of their compounds act as good catalysts.

(b) The E^0 value for the Mn^{3+} / Mn^{2+} couple is much more positive than that of Cr^{3+} / Cr^{2+}.

(c) CrO_4^{2-} is a strong oxidising agent while MnO_4^{2-} is not.
(d) Zr and Hf have identical size.
(e) Transition metals form a number of interstitial compounds.

OR

(a) Write the steps involved in the preparation of $K_2Cr_2O_7$ from $FeCr_2O_4$. 3

(b) What is meant by lanthanoid contraction? What are its consequences? 2

Q.30 (a) A compound 'A' (C_2H_4O) on oxidation gives 'B' ($C_2H_4O_2$). 'A' undergoes iodoform reaction. On treatment with HCN, 'A' forms a product 'C' which on hydrolysis gives 2-hydroxy propanoic acid. 3

(i) Write down the structure of A, B and C.
(ii) Name the product when 'A' reacts with dil. NaOH.
(iii) Write down the equations for the reactions involved.

(b) Give chemical tests to distinguish between compounds in the following pairs:- 2

(i) Ethanal and propanal
(ii) Phenol and benzoic acid

OR

(a) An organic compound with molecular formula $C_9H_{10}O$ forms 2, 4-DNP derivative, reduces tollen's reagent and undergoes cannizzaro reaction. On vigorous oxidation, it gives 1, 2-bezen dicarboxylic acid. 3

(i) Identify the compound.
(ii) Write down the equations for the reactions involved.

(b) Give chemical tests to distinguish between compounds in the following pairs:- 2

(i) Propanal and propanone
(ii) Benzoic acid and ethyl benzoate

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