DELHI PUBLIC SCHOOL, JAMMU ASSIGNMENT (2018-2019)

SUBJECT: CHEMISTRY CLASS: XII

SECTION A(VERY SHORT ANSWER TYPE)

- **Q.1.** Which crystal defect lowers the density of a solid?
- Q.2. Out of BaCl₂ and KCl, which is more effective in causing coagulation of a –vely charged colloidal solution. Give reason?
- **Q.3.** Write the equation for Kolbe's reaction?
- **Q.4.** What do you mean Schiff's base? Give an example?
- **Q.5.** Why do amines behave as nucleophiles?

SECTION B(SHORT ANSWER TYPE)

- **Q.6.** State Raoult's law for a solution containing non volatile solute. What type of deviation from Raoult's law is shown by a solution of chloroform amd acetone?
- **Q.7.** Give reasons for the following:
 - (i)Red phosphorous is less reactive than white phosphorous.
 - (ii)Electron gain enthalpies of halogens are largely –ve?
- **Q.8.** Write two similarities and two difference between the chemistry of lanthanoids and actanoid elements?
- **Q.9.** Why is butan-1-ol optically inactive but butan-2-ol is optically active?
- Q.10. Give reason why benzyl chloride undergoes SN1 reaction faster than cyclohexyl methyl chloride?
- **Q.11.** Silver crystallises in fcc lattice. If the edge length of the cell is 4.077 *10⁻⁸cm and density is 10.5 gm cm⁻³, calculate the atomic mass of silver?
- **Q.12.** A solution of glucose in water is labelled as 10% w/w, what would be the molality and mole fraction of each component in the solution? If the density of the solution is 1.2 g mL⁻¹, then what shall be the molarity of the solution?

	(i)Coagulation and peptization			
	(ii)Homogeneous catalysis and heterogeneous catalysis			
	(iii)Absorption and adsorption			
	(iv)orderand molecularity of reaction.			
Q.14.	(i) Arrange: the following in decreasing order of their basic strength:			
	$C_6H_5NH_2$, $C_2H_5NH_2$, $(C_2H_5)_2NH$, NH_3 .			
	(ii) Why cannot aromatic primary amines be prepared by Gabriel Phthalimide Synthesis?			
Q.15.	5. Draw the structures of the following:			
	$(i)XeF_2$ $(ii) XeO_3$			
Q.16.	6. (i) $[Ni(CN)_4]^{2-}$ is colourless whereas $[Ni(H_2O)_6]^{2+}$ is green. Why?			
	(ii) Define crystal field splitting energy . On the basis of CFT, write the electronic configuration for d^4 ion if Δ_o less than P?			
Q.17.	What happens when:			
	(i)(CH ₃) ₃ C-O-CH ₃ is treated with HI			
	(ii) Anisole is treated with CH ₃ COCl/ anhydrous AlCl ₃ ?			
Q.18.	8. Illustrate the following reactions:			
	(i)Hoffmann bromamide degradation reaction.			
	(ii)Coupling reaction?			
Q.19.	. Write the names and structures of the monomers of the following polymers:			
	(i)Terylene (ii)Teflon (iii)Nylon-6,6			
Q.20.	Define the following terms:			
	(i)Antiseptic			
	(ii)Cationic detergents			
	(iii)Broad spectrum antibiotics.			

Q.13. Write the difference in each of the following:

SECTION C(LONG ANSWER TYPE)

Q.21. The following data were obtained for the reaction:

$$2NO + O_2 \rightarrow 2NO_2$$

Experiment	[A]/mol L ⁻¹	[B]/mol L ⁻¹	Initial rate of formation of NO ₂ /M min ⁻¹
I	0.3	0.2	7.2 x 10 ⁻²
П	0.1	0.1	6.0 x 10 ⁻³
	0.1	0.1	0.0 X 10
			1
III	0.3	0.4	2.88×10^{-1}
IV	0.4	0.1	2.40 x 10 ⁻²
1,	0.1	0.1	2.10 X 10

- (i) Find the order of the reaction with respect to NO and O_2 .
- (ii) Write rate law and overall order of the reaction.
- (iii) Calculate the rate constant(k).
- **Q.22.** (i)State the relationship amongst cell constant of a cell, resistance of the solution in the cell and conductivity of the solution. How is molar conductivity of a solution related to conductivity of its solution?
 - (ii) A voltaic cell is set up at 25° C with the following half cell;

$$Al/Al^{3+}$$
 (0.001M) and Ni/Ni^{2+} (0.50M)

Calculate the cell voltage. [E $^{\circ}_{Ni}{}^{2+}_{/Ni}\!\!=$ -0.25V, E $^{\circ}_{Al3+/Al}\!\!=$ -1.66V]

- **Q.23.** (i) Give reason why Propanone is less reactive than ethanol towards nucleophilic addition reactions.
 - (ii)Bring out the following conversions:
 - a)Acetaldehyde to but-2-enal
 - b)Benzoic acid to benzaldehyde
 - c)Propanone to propene.
