DELHI PUBLIC SCHOOL, JAMMU
ASSIGNMENT (2018-19)

Class: 11th **Time allowed: 3hrs**
Subject: Chemistry

Q.1 Define the term 'ionic radius'.

Q.2 Give the expression for real gas equation.

Q.3 Under what condition $\Delta H > \Delta U$?

Q.4 What are displacement redox reactions?

Q.5 Give the general electronic configuration for d-block elements.

Q.6 Write the possible quantum numbers for the unpaired electrons in fluorine.

Q.7 CO(g) is polar but CO_2(g) is non-polar. Why?

Q.8 (a) Write the conjugate base for HCO_3^-.
(b) For the equilibrium process, $2NH_3(g) \leftrightarrow N_2(g) + 3H_2(g)$, determine the units for K_p.

Q.9 Calculate the oxidation numbers of the underlined atoms: (a) $H_2\underline{S}O_4$ (b) $\underline{C}_3O_2$

Q.10 Give the structure for ring silicates.

Q.11 (a) Calculate molarity of solution of ethanol in water in which mole fraction of ethanol is 0.040.
(b) What will be the mass of one C-atom in grams?

Q.12 What is the concentration of phenoxide ion in 0.05M solution of phenol? What will be its degree of ionization if the solution also contains 0.01M sodium phenoxide in it?

Q.13 Write the electronic configuration for: (i) Cr (ii) Mn (iii) Zn

Q.14 Oxygen has lower ionization enthalpy than nitrogen and fluorine. Why?

Q.15 Draw the molecular orbital diagram for N_2 molecule. Using it, show that nitrogen molecule contains triple bond between its atoms.

Q.16 (a) How many electrons are present in 1.4gm of nitrogen gas?
(b) Hydrogen and oxygen are known to form two compounds. The hydrogen content in one of these is 5.93% and in other is 11.2% respectively. Show that data illustrates law of multiple proportion.

Q.17 How can you remove permanent hardness of water suing ion exchange method.

Q.18 (a) Boric acid is not protic. Why?
(b) CCl_4 cannot be hydrolysed by water but $SiCl_4$ can be easily hydrolysed. Why?
(c) Galium has smaller atomic radius than aluminium. Why?

Q.19 What do you mean by the term 'green chemistry'? How does it helps in reducing environmental pollution?

Q.20 Give the mechanism for electrophillic substitution sulphonation of benzene.

Q.21 Complete the reactions: (a) $C_2H_2 \xrightarrow{HBr(excess)}$ (b) $CH_3\text{-}CH_2\text{-}OH \xrightarrow{conc.H_2SO_4}$

Q.22 (a) Draw the resonating structures and resonance hybrid for acetophenone.

(b) What are nucleophiles? Give example.

Q.23 Explain why :
(a) Alkali and alkaline earth metals cannot be obtained by chemical reduction methods.
(b) Why are caesium and potassium rather than lithium used in photoelectric cells.
(c) Be and Mg do not give colour to flame ,whereas other alkaline earth metals do so.
(d) Potassium carbonate cannot be prepared by solvay process.
(e) LiF is almost insoluble in water ,while LiCl is soluble not only in water but also in acetone.

Q.24 Explain the following:

(a) LiCl is predominantly covalent while Nacl is ionic.

(b) An aqueous solution of sodium carbonate is alkaline in nature.
(c) Discuss the anomalous behaviour of lithium and its diagonal relationship with magnesium.

Q.26 (a) Draw the conformers of ethane. Which isomer is more stable and why?
(b) Give the IUPAC name for the following:
(i) $CH_3\text{-}CH{=}CH\text{-}CH(Br)\text{-}COOH$ (ii) $(CH_3)_2CH\text{-}CH_2\text{-}CH(CH_3)\text{-}CHO$
(c) $C_6H_5\text{-}CH{=}CH\text{-}CHO$

Q.27 (i) Define the following terms with examples: (a) Resonance (b) Electromeric effect
(ii) Give the structure for 2-Hydroxybutanal.
(iii) Define hyperconjugation with example.