

15. Write one difference in each of the following.
- Multimolecular colloid and associated colloid
 - Coagulation and peptization
 - Homogeneous catalysis and heterogeneous catalysis
16. a) Name the method used for refining of nickel.
b) Name the principal ore of aluminium. Explain the significance of leaching in the extraction of aluminium.
17. Give reasons.
- Transition metals show variable oxidation states.
 - Zn, Cd, Hg are soft metals.
 - $2\text{MnO}_4^- + 16\text{H}^+ + 5\text{S}^{2-} \rightarrow \underline{\hspace{2cm}}$
18. Describe the following complex ions, the type of hybridisation, shape and magnetic property.
- $[\text{Fe}(\text{H}_2\text{O})_6]^{2+}$
 - $[\text{Co}(\text{NH}_3)_6]^{3+}$
 - $[\text{NiCl}_4]^{2-}$
19. The following compounds are given to you.
2-Bromopentane, 2-Bromo-2-methylbutane, 1-Bromopentane
- Write the compound which is more reactive towards $\text{S}_{\text{N}}2$ reaction.
 - Write the compound which is optically active.
 - Write the compound which is most reactive towards β elimination reaction.
20. a) Write the structures of A B C in the following reactions.
- (i) $\text{C}_6\text{H}_5\text{NO}_2 \xrightarrow{\text{Sn/HCl}} \text{A} \xrightarrow[273\text{k}]{\text{NaNO}_2 + \text{HCl}} \text{B} \xrightarrow[\blacktriangle]{\text{H}_2\text{O}} \text{C}$
- (ii) $\text{CH}_3\text{Cl} \xrightarrow{\text{KCN}} \text{A} \xrightarrow{\text{LiAlH}_4} \text{B} \xrightarrow[273\text{k}]{\text{HNO}_2} \text{C}$
- b) Arrange the following in the decreasing order of their basic strength.
 $\text{C}_6\text{H}_5\text{NH}_2$, $\text{C}_2\text{H}_5\text{NH}_2$, $(\text{C}_2\text{H}_5)_2\text{NH}$, NH_3
21. a) Which vitamin deficiency causes Rickets?
b) Name the base that is found in nucleotide of RNA only.
c) Glucose on reaction with Acetic acid gives glucose pentaacetate. What does it suggest about the structure of glucose?
22. Write the structures of the monomers used for getting the following polymers.
- Nylon -6,6
 - Melamine-formaldehyde polymer
 - Buna-S
23. Due to hectic and busy schedule, Mr. Angad made his life full of tension and anxiety. He started taking sleeping pills to overcome the depression without consulting the doctor. Mr. Deepak close friend of Mr. Angad, advised him to stop taking sleeping pills and suggested to change his lifestyle by doing yoga, meditation and some physical exercise. Mr. Angad followed his friends advice and after few days he started feeling better.
After reading the above passage answer the following questions.
- What are the values displayed by Mr. Deepak?
 - Why is it not advisable to take sleeping pills without consulting a doctor?
 - What are tranquilizers? Give two examples.
24. a) Arrange the following in increasing order of reducing character.
 H_3PO_3 , H_3PO_4 , H_3PO_2
- Give reasons.
 - Bond enthalpy of F_2 is lower than that of Cl_2 .
 - PH_3 has lower boiling point than NH_3 .
 - Draw structures of.
 - XeF_4
 - $(\text{HPO}_3)_3$
- OR
- What happens when
 - chlorine gas is passed through a hot concentrated solution of NaOH?

(ii) sulphurdioxide gas is passed through an aqueous solution of a Fe(III) salt?

b) Answer the following.

(i) What is the basicity of H_3PO_3 and why?

(ii) Why do fluorine not play the role of a central atom in interhalogen compounds?

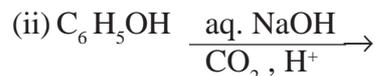
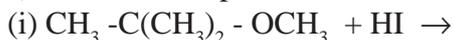
(iii) Why do noble gases have very low boiling points?

25. a) Explain the mechanism of the following reaction.

Acid catalysed hydration of an alkene forming an alcohol.

b) Explain why p-nitrophenol is more acidic than phenol.

c) Write the main products in each of the following.



OR

a) Give the mechanism of preparation of ethoxy ethane from ethanol.

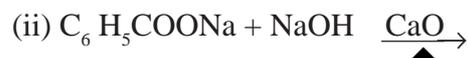
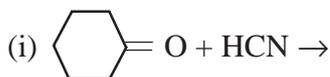
b) Explain the following.

(i) Alcohols are more soluble in water than the hydrocarbons of comparable molecular mass.

(ii) Ortho nitro phenol is more acidic than orthomethoxy phenol.

(iii) Cumene is a better starting material for the preparation of phenol.

26. a) Write the products in the following reactions.



b) Give a chemical test to distinguish between the following.

(i) Butanal and Butan -2- one.

(ii) Benzoic acid and phenol.

OR

a) Write the reactions involved.

(i) Clemmensen reduction

(ii) Stephen reduction

b) How will you convert the following?

(i) Benzoic acid to benzaldehyde

(ii) Acetone to propane

(iii) Ethanoic acid to 2-Hydroxy ethanoic acid