1. Identify the chiral centre in given compound
   \((\text{CH}_3)_2\text{CH}-\text{CHClC}_2\text{H}_5\).

2. There are two -NH_2 group in semicarbazide but only one is involve for reaction. Give reason.

3. Why the alcohol exhibits more B.P than hydrocarbon of comparable molecular mass?

4. Arrange the following according to SN^2 mechanism:
   \((\text{C}_6\text{H}_5)_2\text{CHBr}, \text{C}_6\text{H}_5\text{CH}_2\text{Br}, (\text{C}_6\text{H}_5)_3\text{CBr}, (\text{C}_6\text{H}_5)_2\text{C}(\text{CH}_3)\text{Br}\)

5. Write structure of compound: \(p,p'\text{Dihydroxybenzophenone}\)

6. What is meant by term Hemiacetal.

7. Write IUPAC naming of
   a) \(\text{CH}_3\text{OH}\)
   b) \(\text{CH}_3\text{OH}\)

8. Write the mechanism of the following reaction:
   \(\text{nBuBr} + \text{KCN} \rightarrow \text{nBuCN} + \text{KBr}\)

9. What is meant for Hydroboration–oxidation reaction and Wolff Kishner reaction.

10. Identify A, B →
    \(\text{Br}\rightarrow\text{H}_2\text{O}\rightarrow\text{Br}\)

11. Write the equation of the reaction of HI with:
    a) Benzylethyl ether  
    b) 1-Propxypropane

12. Predict the order of reactivity of the following compound towards SN^1
    a) The four isomeric Bromobutane.
    b) \(\text{Cl}, \text{I}, \text{Br}\)

13. Show how will you synthesise:
    a) 1-Phenylethanol from suitable alkene.
    b) Phenol from benzenesulphonic acid

14. Write the mechanism of hydration of ethane to yield ethanol.

15. Explain the following with example
    a) Cannizzaro reaction  
    b) Reimertiemann reaction  
    c) Aldol condensation.
16 Convert the following
   a) Propene to propanol-2  
   b) Ethanal to butan-1,3-diol  
   c) Benzene to Biphenyl.

17 Draw the structures of major product
   a) \( \text{CH}_3\text{CH} = \text{CH}_2 \stackrel{\text{Br}_2}{\longrightarrow} \text{CH}_2 = \text{CH}_2 + \text{HBr} \stackrel{\text{H}_2\text{O}_2}{\longrightarrow} \)
   b) \( \text{CH}_3\text{CH} = \text{CH} \text{CH}_3 \)
   c) \( \text{CH}_3\text{CH} = \text{CH} \text{OH} \quad + \text{HCl} \rightarrow \)

18 Predict the product:
   a) \( \text{CH}_3\text{CH}_2\text{CH}_3 \stackrel{\text{KMnO}_4}{\rightarrow} \text{CH}_3\text{CO}_2\text{H} \)
   b) \( \text{CH}_3\text{CHO} \quad \text{NH}_2\text{OH} \quad \text{[aq(NH}_3\text{OH)]}^+ \)

19 (i) Predict the major product of acid catalysed dehydration reaction of
   a) Butanol-1
   b) 2-methyl butanol2

   ii) Give equation of following reaction
   a) Oxidation of propanol-1 with alkaline KMnO_4.
   b) Toluene with chromylchloride
   c) Dilute HNO_3 with Phenol.

20 (i) The treatment of alkyl chloride with aq. KOH leads to the formation of alcohol but in alc. KOH alkene is the major product.

   (ii) Predict the alkene form by dehydrohalogenation of following halides:
   a. 1-Bromo1methylcyclohexane
   b. 2-chloro2methylbutane
   c. 2,2,3trimethyl3Bromopentane

21 (i) Name the reagent used in following reaction:
   a) Oxidation of primary alcohol to carboxylic acid
   b) Butanone-2 to butanol-2
   c) Bromination of phenol to 2,4,6 tribromophenol.

   ii) Give the chemical test to distinguish aldehydes and ketones.