

2020-21
Time - 3 hours
Full Marks – 60

*Answer **all groups** as per instructions.
Figures in the right hand margin indicate marks.
Candidates are required to answer
in their own words as far as practicable.*

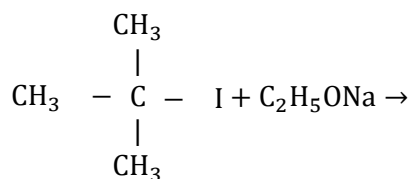
Group-A

1. Answer all questions or fill in the blanks as required. [1x8]
- a) Give an example of neutral nucleophile.
- b) What type of mechanism followed by this reaction
- $$\text{R-OH} + \text{SOCl}_2 \rightarrow \text{R-Cl} + \text{SO}_2 + \text{H}_2\text{O}$$
- c) Write the structure of trihydric alcohol.
- d) Which one is more acidic?
- Picric acid, 2,4-dinitro phenol
- e) Acetone on reduction with Zn-Hg and conc.HCl, gives_____.
- f) Which one is most reactive among the acid derivatives?
- g) Name the reaction which converts amide to 1^o-amine.
- h) Between allyl bromide and vinyl bromide, which one is more reactive towards nucleophilic substitution reaction?

Group-B

2. Answer any eight of the following questions within two or three sentences each. [1 $\frac{1}{2}$ x8]

- a) Suggest the product of the reaction:



- b) Convert chlorobenzene to aniline.

- c) What happens when ethylene glycol reacts with per-iodic acid?
- d) How phenol is prepared from cumene?
- e) Name two catalysts which are used in Bayer-Villiger oxidation.
- f) Among propanol, propanal, propanone and acetic acid, which has more boiling point and why?
- g) What happens when acetic acid reacts with Cl, in presence of red phosphorus?
- h) What happens when phenol reacts with Br₂ water?
- i) Complete the reaction

$$\text{CH}_3 - \text{CO} - \text{CH}_3 + \text{dil. NaOH} \rightarrow$$
- j) What is Lucas reagent? Find the order of reactivity of alcohols in Lucas test.

GROUP-C

3. Write notes on any eight of the followings within 75 words: [2x8]
- a) Write a reaction which directly converts acetone to 2-methyl propane?
 - b) How is glycol prepared?
 - c) What is Bouvalent Blanc reduction?
 - d) How many sigma-, pi-bonds and lone pairs in tetra cyano ethylene?
 - e) What is Fries rearrangement?
 - f) What happens when formaldehyde reacts with semicarba zide? Give equation.
 - g) Give a reaction which converts acetone to propane. Write the pathways of reaction.
 - h) What happens when mixture of benzaldehyde and formaldehyde react with conc. NaOH?
 - i) What is MPV reduction reaction?
 - j) Write the mechanism of Curtius rearrangement.

GROUP- D

4. Answer any four questions within 500 words each. [6x4]
- a) Discuss about SN₁ and SN₂ mechanisms with stereochemical aspects and effect of solvent.
 - b) How can you prepare aryl halides from benzene diazonium chloride?
 - c) How can you prepare three types of alcohols by using Grignard's reagent?
 - d) Write the mechanism of:
 - I) Pinacol- Pinacolone rearrangement
 - II) Claisen rearrangement
 - e) Write the mechanism of:
 - I) Knoevenagel condensation
 - II) Backmann rearrangement
 - f) How can you prepare benzaldehyde by Etard's reaction, Gatterman Koch synthesis and from benzal chloride?
 - g) Write the mechanism of:
 - I) Reformatsky reaction
 - II) Dieckmann reaction
