

**2024(Backlog)**

*Time : 3 hours*

*Full Marks : 60*

*Pass Marks : 24*

*Candidates are required to give their answers in their own words as far as practicable.*

*The figures in the margin indicate full marks.*

*Answer from both the Groups as directed.*

**Group – A**

1. Answer all questions of the following :

1×10 = 10

(a) Which intermediate is formed in  $SN^1$  reaction ?

(b) In bromide ion and iodide ion, which one is better nucleophile ?

(c) Give an example of aryl halide.

- (d) Which test can be used to distinguish between 1°, 2°, and 3° alcohol ?
- (e) Why lower alcohols are more soluble in water ?
- (f) What is Lucas reagent ?
- (g) Why phenol darkens on exposure to air ?
- (h) Give one example of ether.
- (i) Why formaldehyde fails to be part in Aldol condensation ?
- (j) Give the structural formula of Fumaric Acid.
2. What are organometallic compounds ? Give two examples. Discuss its three uses in synthesis of organic compounds. 5

### Group – B

Answer any **three** questions of the following :

3. (a) Write the differences between alcohols and phenols. 8
- (b) How phenol is prepared from coal tar ? 7

4. (a) Give the mechanism of Williamson's synthesis for the preparation of ether. 8
- (b) Discuss the mechanism of acid and base catalyzed cleavage of epoxides. 7
5. Explain preparation and synthetic applications of ethylacetoacetate. 15
6. Briefly explain any **three** of the following : 5×3 = 15
- (a) Wittig reaction
- (b) Fries rearrangement
- (c) Michael addition
- (d) Reformatsky reaction
- (e) Nucleophilic substitution Vs Elimination reaction.

7. Write short notes on any **three** of the following : 5×3 = 15

(a) DDT

- (b) Esterification of alcohol
- (c)  $\text{LiAlH}_4$
- (d) Conversion of Tartaric acid to succinic acid
- (e) Mercaptans

