

BACHELOR OF SCIENCE (CBCS-2018 COURSE)
F. Y. B. Sc. Sem-I : WINTER- 2022
SUBJECT : CHEMISTRY : ORGANIC & INORGANIC CHEMISTRY-I

Day : Monday

Time : 10:00 AM-01:00 PM

Date : 12/12/2022

W-18296-2022

Max. Marks : 60

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SAME** answer book.

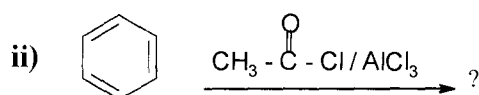
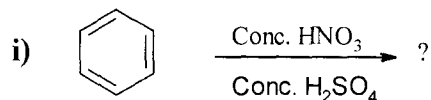
SECTION – I [Organic Chemistry]

Q.1 Attempt **ANY TWO** of the following: **[12]**

- a) What is sulphonation? Discuss its mechanism. How it differs from other substitution reactions?
- b) What are aldehydes and ketones? How will you carry out following conversions?
 - i) Benzaldehyde to Cinnamic acid
 - ii) Acetone to tertiary butyl alcohol
- c) Write a note on : Inductive effect.

Q.2 Attempt **ANY TWO** of the following: **[12]**

- a) Explain the following:
 - i) Formic acid is a stronger acid than acetic acid.
 - ii) Aniline is much more weaker base than cyclohexyl amine.
- b) Predict the product/s and suggest the mechanism:



- c) Write a note on : Aldol condensation.

Q.3 Attempt **ANY THREE** of the following: **[12]**

- a) What are free radicals? Discuss their generation and stability.
- b) What is alkylation? Discuss the mechanism of Friedel-Craft alkylation. What are its limitations?
- c) Discuss Wittig reaction with suitable examples.
- d) Write a note on : Reduction of Carbonyl Compounds by LiAlH_4 .

P.T.O.

SECTION – II [Inorganic Chemistry]

Q.4 Attempt **ANY TWO** of the following: **[12]**

- a) Why are Group IA and Group IIA elements called s-block elements? Write the names and outer electronic configuration of Group IIA elements. Discuss the trends in atomic size, ionization potential and oxidation states of Group IIA elements.
- b) What is meant by anomalous behavior? Explain it with suitable example from s-block elements.
- c) Mention applications of compounds of alkali metals and alkaline earth metals in agricultural, biological and industrial fields.

Q.5 Attempt **ANY FOUR** of the following: **[12]**

- a) State and explain Hund's rule and Pauli's exclusion principle.
- b) Alkali metals are highly reactive. Explain.
- c) Write electronic configuration of K (At. No.19), Na⁺ (At. No.11) and Mg (At.No.12).
- d) Comment upon 'special position' of hydrogen in the periodic table.
- e) Li and Mg shows diagonal relationship. Explain.
- f) Give the examples of hydroxides, oxides and peroxides of alkali metals.

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