

BACHELOR OF SCIENCE (CBCS-2018 COURSE)
F. Y. B. Sc. Sem-I : WINTER :- 2021
SUBJECT: CHEMISTRY : ORGANIC & INORGANIC CHEMISTRY-I

Day : Monday
Date 24-01-2022

W-18296-2021

Time : 10:00 AM-01:00 PM
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.

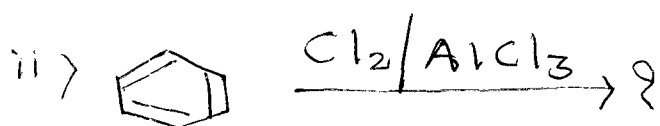
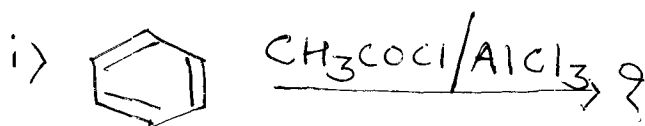
SECTION – I
[Organic Chemistry]

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

- a) What is sulphonation? Discuss the mechanism of sulphonation of benzene. How it differs from other electrophilic substitution reactions?
- b) What are aldehydes and ketones? How will you carry out following conversions?
 - i) Benzaldehyde to Cinnamic acid.
 - ii) Cyclopentanone to Cyclopentane
- c) Write a note on : Types of organic reaction.

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

- a) Explain the following:
 - i) Formic acid is stronger acid than acetic acid.
 - ii) In a polar solvent methyl amine is stronger base than dimethyl amine.
- b) Predict the product/s and suggest the mechanism:



- c) Write a note on : Grignard's reaction.

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

- a) What are aromatic compounds? Explain the Huckel's rule for aromaticity with examples.
- b) What are free radicals? Discuss their generation and stability.
- c) Differentiate between inductive and resonance effect.
- d) Write a note on : Reduction of aldehydes and ketones by LiAlH_4 .

P.T.O.

SECTION – II
[Inorganic Chemistry]

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

- a) Comment upon the 'special position' of hydrogen in the long form of the periodic table.
- b) What is diagonal relationship? Explain it with a suitable example with reference to s-block elements.
- c) Draw a rough sketch of the periodic table and show the position of s-block elements. Write the names and outer electronic configuration of Group IA elements. Comment upon the trends in atomic size, ionization potential and reactivity of these elements.

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

- a) State and explain Hund's rule of maximum multiplicity.
- b) Write electronic configuration of:
i) Ca (At. No. 20) ii) Na^+ (At. No. 11) iii) K (At. No. 19)
- c) Mention important applications of compounds of s-block elements in agricultural and industrial fields.
- d) Write a short note on crown ethers.
- e) Ionization potential decreases down the Group IIA elements. Explain.
- f) State and explain Pauli's exclusion principle.

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