

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

Day : Saturday  
Date : 9/7/2022

**S-18296-2022**

Time : 11:00 AM-02:00 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.

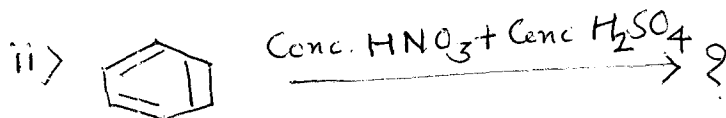
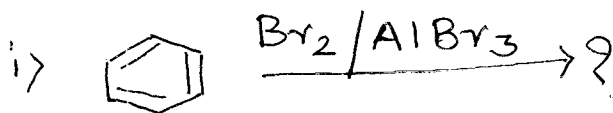
**SECTION – I**  
**[Organic Chemistry]**

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

- a) What is alkylation? Discuss the mechanism of Friedel – Craft alkylation of benzene. What are its limitations?
- b) What are aldehydes and ketones? How will you carry following conversions?
  - i) Cyclohexanone to methylene cyclohexane
  - ii) Acetaldehyde to Isopropyl alcohol
- c) Write a note on : Resonance effect.

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

- a) Explain the following:
  - i) Salicylic acid is a stronger acid than benzoic 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 : Cannizzaro's reaction.

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

- a) What are carbocations? Discuss their generation and stability.
- b) What is sulphonation? Discuss the mechanism of sulphonation of benzene.
- c) Explain the terms: i) Homolysis                      ii) Heterolysis
- d) Write a note on : Perkin's reaction.

**P.T.O.**

**SECTION – II**  
**[Inorganic Chemistry]**

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

- a) State and explain Hund's rule of maximum multiplicity and Pauli's exclusion principle.
- b) Write the names and outer electronic configuration of alkali metals. Comment upon the trends in atomic size, ionization potential, reactivity of these elements.
- c) Mention important applications of s-block elements and their compounds in industrial, biological and agricultural fields.

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

- a) The common oxidation state shown by alkaline earth metals is +2. Explain.
- b) Write electronic configuration of :  
i) K (At. No. 19)      ii) Be (At. No. 4)      iii) Mg (At. No. 12)
- c) Write a short note on crown ethers.
- d) Alkali metals are electropositive. Explain.
- e) In Group IIA ionization potential decreases down the group. Explain.
- f) Group IA and Group IIA elements are called s-block elements. Explain.

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