

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

Day : Monday
Date : 11/7/2022

S-18323-2022

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 books.
- 4) Draw neat and labelled diagrams **WHEREVER** necessary.

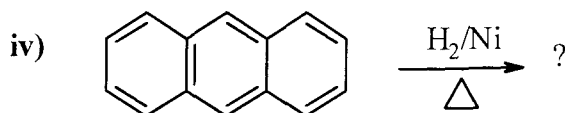
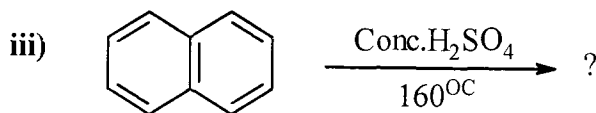
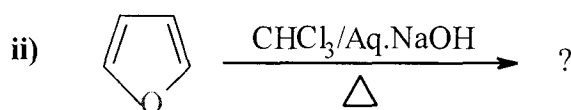
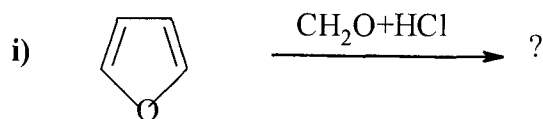
SECTION – I
(Organic Chemistry)

Q.1 Attempt any **TWO** of the following: **(12)**

- a) What is conformational isomerism? Draw all possible conformations of n-Butane and explain their stability with energy profile diagram.
- b) What are Polynuclear aromatic compounds? How do you bring about the following conversions?
 - i) Naphthalene to Declain
 - ii) Anthracene to 9-Bruno anthracene
- c) What are heterocyclic compounds? Discuss any two methods of synthesis of Pyrrole.

Q.2 Attempt any **TWO** of the following: **(12)**

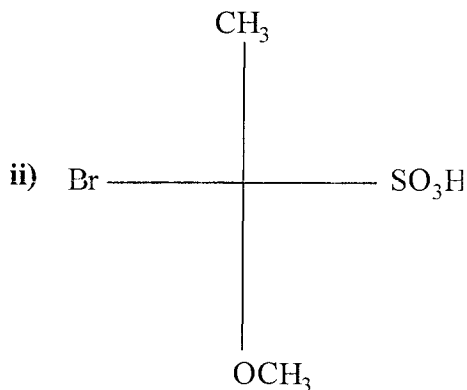
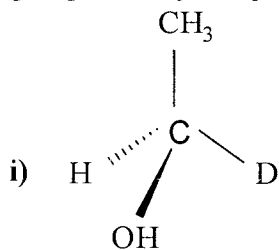
- a) Explain the terms with examples.
 - i) Enantiomers
 - ii) Diastereomers
- b) Discuss any two methods of preparation of cycloalkanes.
- c) Predict the product/s:



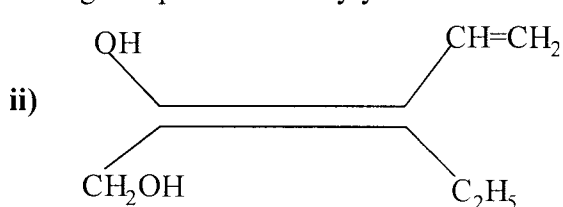
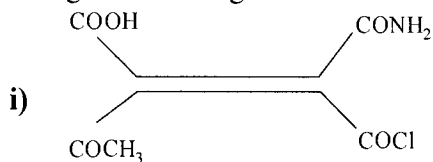
P.T.O.

Q.3 Attempt any **THREE** of the following: (12)

- Discuss the molecular orbital structure of thiophene.
- Discuss the Haworth's synthesis of Naphthalene.
- Assign R/S configuration to the following compounds. Indicate sequence of groups clearly and justify your answer.



d) Assign E/Z configuration to the following compounds. Justify your answer.



SECTION – II (Inorganic Chemistry)

Q.4 Attempt any **TWO** of the following: (12)

- Write the names and outer electronic configuration of nitrogen family elements. Explain the trends in atomic size, ionization potential and oxidation states of these elements.
- What is meant by allotropes? Describe allotropes of carbon.
- What is anomalous behavior? Comment upon anomalous behavior of fluorine.

Q.5 Attempt any **FOUR** of the following: (12)

- Give two examples each of hydrides of nitrogen, interhalogen compounds and oxyacids of nitrogen.
- Write electronic configuration of Cl^- (At. No. 17), P (At. No. 15) and O^{2-} (At. No. 8).
- Draw the structures of IF_7 , Al_2Cl_6 and graphite.
- What are oxidation states of Cl in HCl, N in NO_2^- and B in BF_3 .
- Write a note on silicates.
- Define : oxyacids, electron affinity and ionization potential.

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