

[5245]-104

First Year B. Pharmacy

**PHARMACEUTICAL ORGANIC CHEMISTRY - I**  
(2013 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) All questions are compulsory.
- 2) Answers to the two sections should be written in separate answer sheet.
- 3) Neat diagrams must be drawn in separate answer sheet.
- 4) Figures to the right indicate full marks.

**SECTION - I**

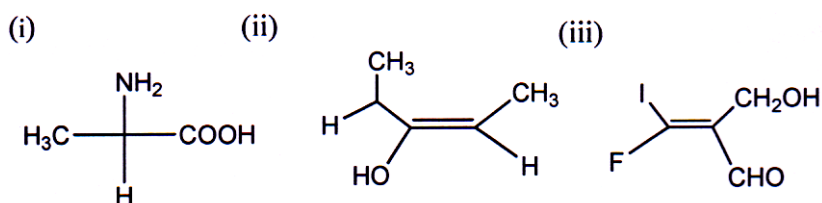
**Q1)** What are elimination reactions? Explain mechanism, stereochemistry of E<sub>1</sub> and E<sub>2</sub> reactions. Compare E<sub>1</sub> and E<sub>2</sub> mechanism. [10]

OR

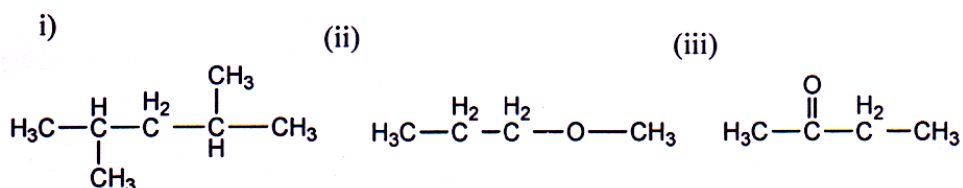
What is aromatic electrophilic substitution reaction? Mention any three types of it. Write down the mechanism of Nitration of benzene and Friedel Crafts acylation.

**Q2)** Answer the following (Any Five) [15]

a) Assign R/S or E/Z configuration to following



b) Write IUPAC names for following structures



**P.T.O.**

- c) Write any three methods of preparation of alkanes.
- d) Define following terms with suitable examples
  - i) Carbocation
  - ii) Carbanion
  - iii) Nucleophiles
- e) Draw structures from IUPAC names of following:
  - i) 1, 3-dinitro benzene
  - ii) Methyl propanoate
  - iii) Methoxy propane
- f) Explain hyperconjugation with example.
- g) Draw resonating structures of any two from following.
  - i) Nitrobenzene
  - ii) Benzaldehyde
  - iii) Aniline

**Q3)** Answer the following (any two)

**[10]**

- a) Discuss Markovnikov and Anti-Markovnikov rule with example.
- b) Explain the addition-elimination and elimination-addition mechanisms of nucleophilic aromatic substitution.
- c) Define hybridization. Mention different types of hybridization? Explain  $SP^3$  hybridization.
- d) Classify organic compounds on the basis of elemental composition (at least five classes with suitable examples).

### **SECTION - II**

- Q4)** a) What is isomerism? Explain enantiomers and diastereomers with examples.
- b) Classify various types of chemical reactions with suitable examples.

**[10]**

OR

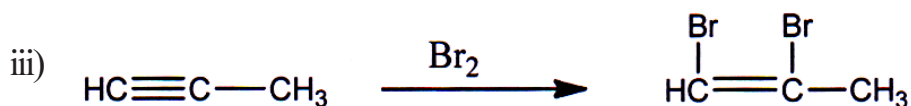
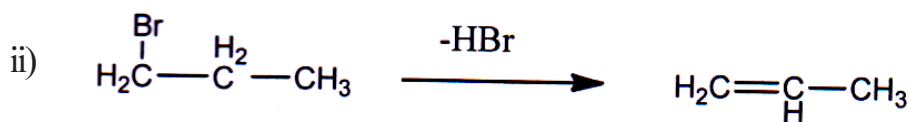
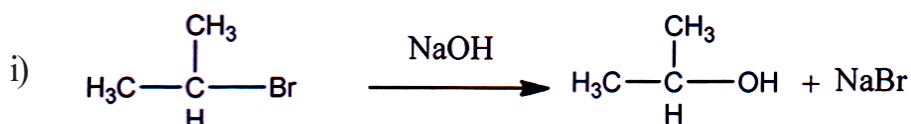
Explain the directing effects of following functional groups towards electrophilic substitutions on benzene:

- i) - OH
- ii) - CH<sub>3</sub>
- iii) - COOH
- iv) - NO<sub>2</sub>

**Q5)** Answer the following (any five)

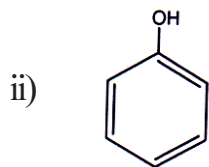
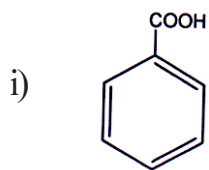
**[15]**

- a) Arrange following in order of increasing acidity with explanation
  - i) Acetic acid
  - ii) Trichloroacetic acid
  - iii) Chloroacetic acid
- b) Explain Hoffman rule for 1, 2 elimination reaction?
- c) Write a note on Diels alder reaction.
- d) Explain Tautomerism with example.
- e) Identify the type of chemical reaction (Addition, Substitution etc) in following:



- f) Explain Inductive effect and electromeric effect with example.

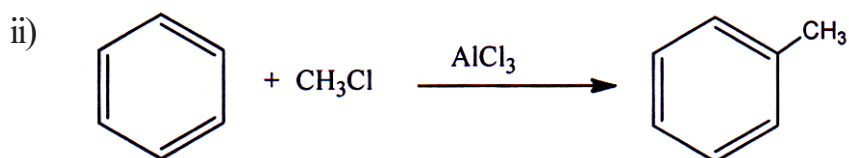
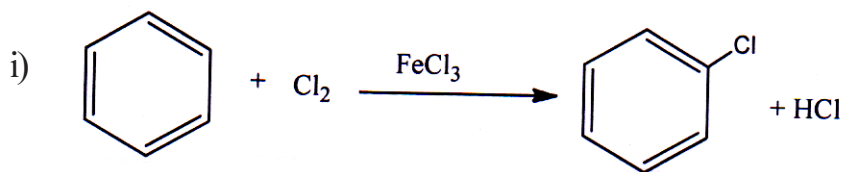
g) Draw all possible resonating structures of following



**Q6)** Answer the following (Any Two)

**[10]**

- Explain Inter and Intra molecular forces of attraction.
- Explain the effects of H-bonding on Melting point and acidity with suitable examples.
- Write down the stepwise mechanism for following reactions



- What are alkynes? Write their any two methods of preparation and two reactions.

