



UTTARAKHAND OPEN UNIVERSITY, HALDWANI (NAINITAL)

**M.Sc. First Year Chemistry**

*Last Date of Submission:*

*15 May, 2014*

**Course Title: Organic Chemistry**

**Course Code: CHE502**

**Year: 2013-14**

**Maximum Marks: 40 Marks**

**Section 'A'**

**Section 'A' contains 08 short answer type questions of 5 marks each. Learners are required to answer 4 questions only. Answers of short answer-type questions must be restricted to 250 words approximately.**

Briefly discuss the following:

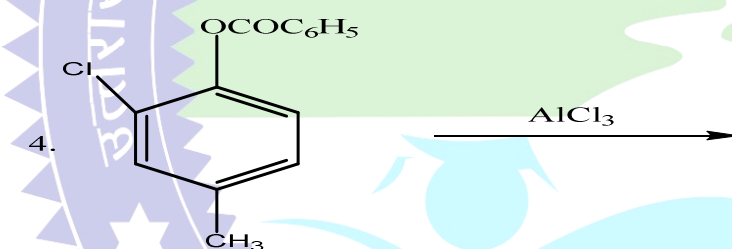
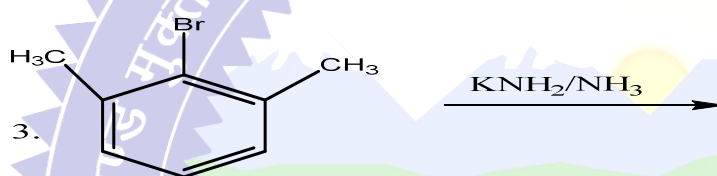
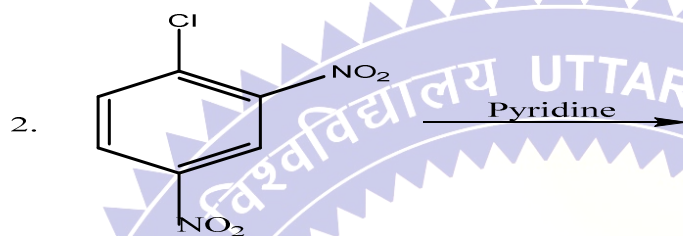
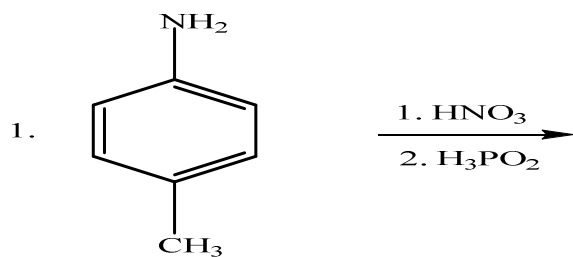
1. Define the term (a) Conformation (b) Configuration (c) Chirality
2. Give one example each with mechanism for  $\alpha$ -elimination, E2, E1 and E1cB reaction.
3. Write down the mechanism of; (a) Hydroboration Oxidation (b) Fries rearrangement reaction (c)  $SN_2$  reaction.
4. Explain Huckel's rule of aromaticity. How does NMR help to explain Huckel's rule.
5. Discuss the two important methods for the synthesis of quinoline.
6. Describe the techniques for isolation of monoterpenoids.
7. Discuss the Woodward's synthesis of quinine.
8. Difference between (i) D and L sugar

**Section 'B'**

**Section 'B' contains 04 long answer-type questions of 10 marks each. Learners are required to answer 02 questions only.**

1. (a) Define the terms (i) Enantiomers (ii) Diastereomers (iii) Chirality  
(b) Draw the Newman Conformations of Ethane.  
(c) What are the main characteristic features of configurational and conformational isomers.  
(d) Explain with suitable examples; Homotopic, enantiotopic and diastereotopic ligands.

2. Predict the major product and mechanism of the following reactions:



3. (a) Discuss the Stereochemistry in  $S_E1$  and  $S_E2$  reactions with suitable examples.

(b) What are disaccharides? Name two naturally occurring polysaccharides of  $\alpha$ -D glucose?

Discuss briefly their structure.

4. Write the mechanism of the following reactions:

i. Hofmann rearrangement

ii. Sharpless asymmetric epoxidation

iii. Ruff degradation

iv. Diazo transfer reaction