

# UNIVERSITY OF NAIROBI

## CONTINUOUS ASSESSMENT TEST II

### SCH 202: CHEMISTRY OF ALKYL HALIDES, ALCOHOLS, ETHERS ALKENES, ALKYNES AND AROMATIC COMPOUNDS

#### INSTRUCTIONS

ANSWER *ALL* QUESTIONS AND HAND IN TO THE EXAMINER ON 2<sup>ND</sup> MARCH BEFORE STARTING THE EXAM.

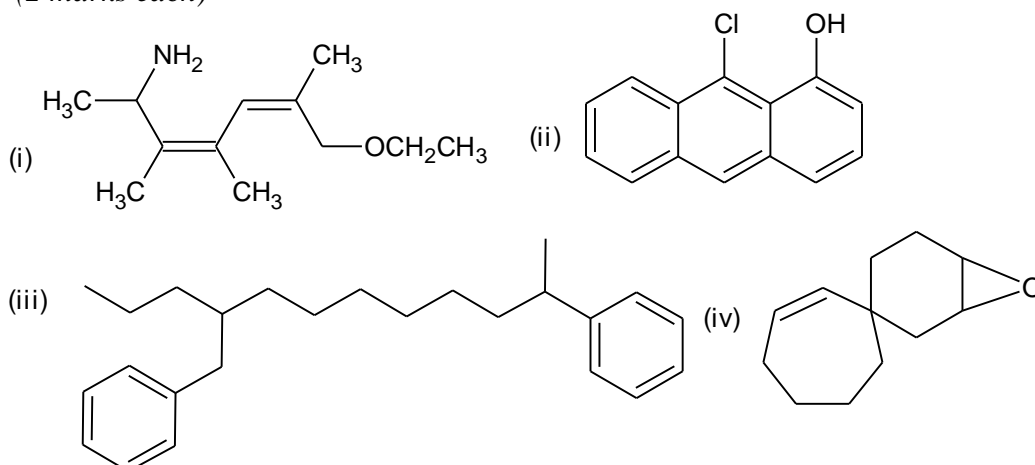
Q1 a) (i) In the nitration of benzene, what is the role of sulphuric acid? Show using equations and mechanisms how the nitration of benzene takes place. **[8 marks]**

b) Explain the effect of having the following substituent in a benzene ring on electrophilic aromatic substitution

(i) Electron donating group **[2 marks]**

(ii) Electron withdrawing group **[2 marks]**

Q2 a) Provide IUPAC names for each of the following. Indicate stereochemistry if shown. (2 marks each) **[8 marks]**

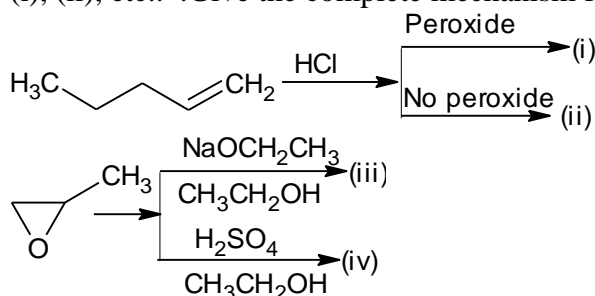


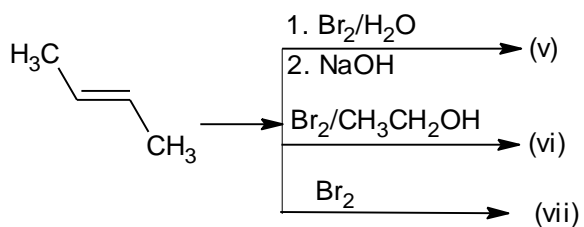
b) (i) Define the terms: protic solvent, polar aprotic solvent, participatory solvent, non-participatory solvent. Explain the solvent effects on S<sub>N</sub>2 reactions? **[7 marks]**

(ii) Which is the best solvent for Grignard reactions and why? **[3 marks]**

(iii) Suggest the best alcohol and alkylhalide for the synthesis of 2-ethoxypentane, Write the complete mechanism for the reaction. **[6 marks]**

Q3. a) Write the structural formula for the products in each of the following reactions (indicated (i), (ii), etc..). Give the complete mechanism for arriving at each of the products.





(8 marks each)

**[56 marks]**

b) Suggest the complete mechanism for each of the following reactions

**[14 marks]**