

**KABARAK**



**UNIVERSITY**

**EXAMINATIONS**

**2008/2009 ACADEMIC YEAR**

**FOR THE DEGREE OF BACHELOR OF EDUCATION  
SCIENCE**

**COURSE CODE: CHEM 212**

**COURSE TITLE: ORGANIC CHEMISTRY II**

**STREAM: SESSION IV**

**DAY: SATURDAY**

**TIME: 2.00-4.00 P.M.**

**DATE: 29/11/2008**

---

**INSTRUCTIONS:**

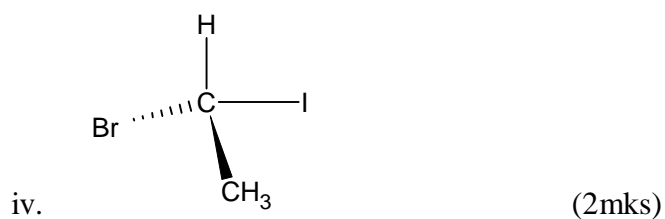
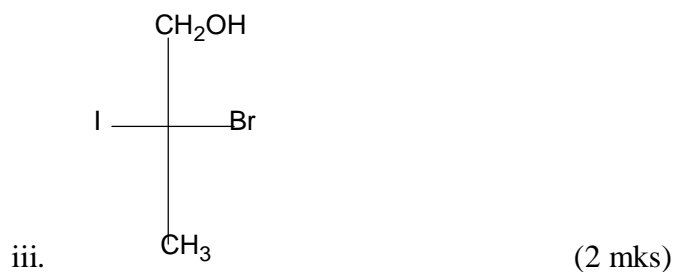
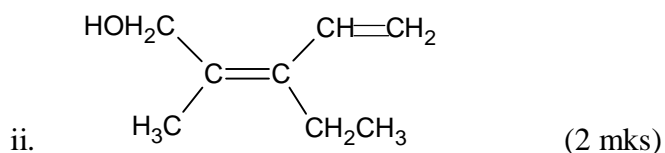
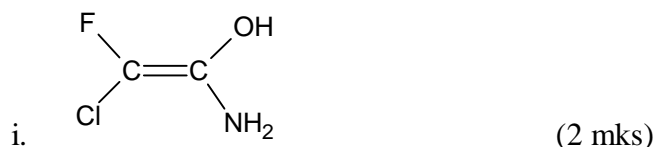
*Attempt ALL questions*

**PLEASE TURN OVER**

1. (a) Define the following terms:

- i. Stereoisomers (1 mk)
- ii. Enantiomers (1 mk)
- iii. Racemic modification (1 mk)
- iv. Configuration (1 mk)

(b) Designate the following structures as E, Z, R or S configurations



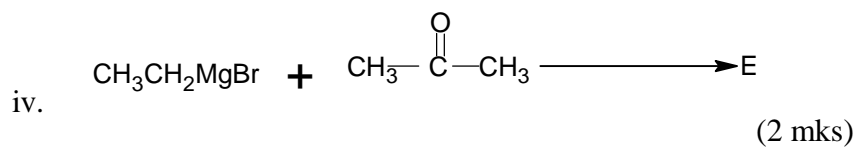
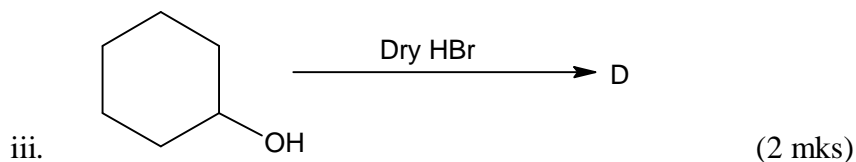
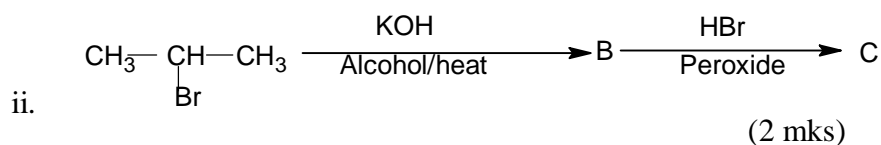
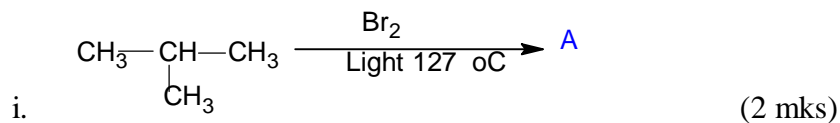
2. (a) Give the structural formulae of the following organic compounds in three dimensional projections where possible;

- i. (E)-2-Hexene (2 mks)
- ii. (Z)-1-Chloro-2,3,3-trimethyl-1-butene (2 mks)
- iii. (R)-2-Bromopentane (2 mks)
- iv. (S)-2-Chloro-3-dimethylhexane (2 mks)

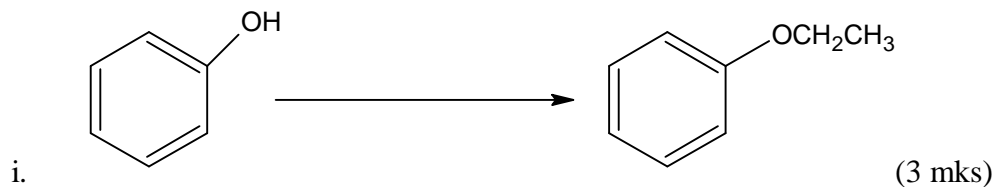
(b) Considering only rotations about the bond shown draw a potential energy versus rotation curve for the molecule below;

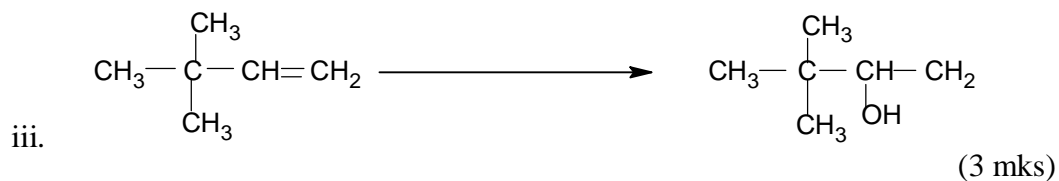
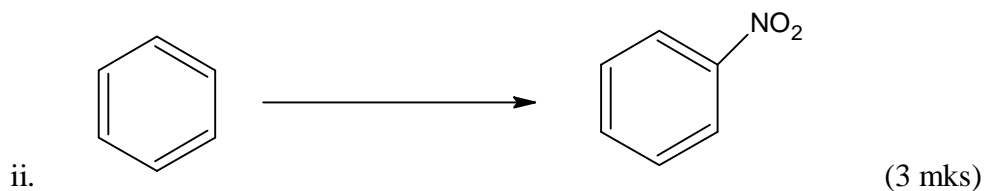


3(a) Predict the major products of the following reactions

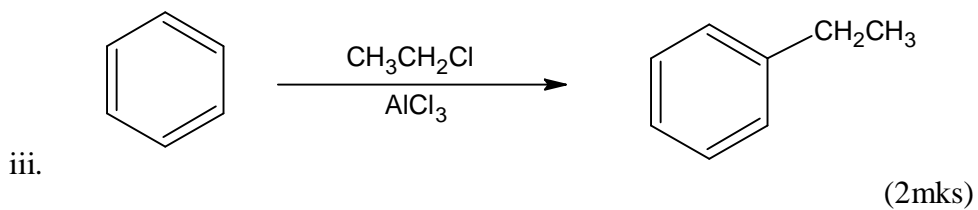
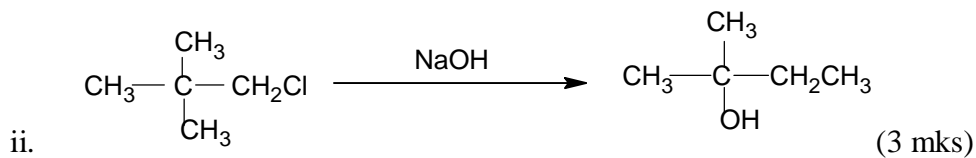
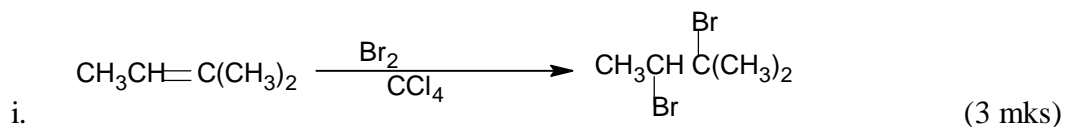


(b) Show how you would accomplish the following transformations



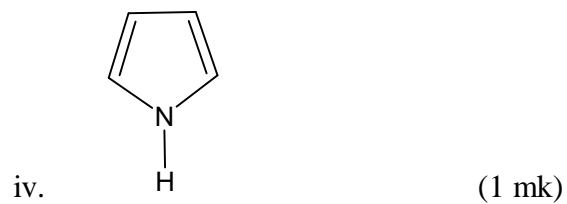
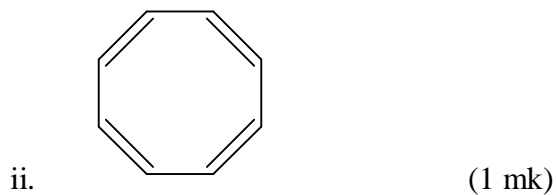


4 (a) Write a possible mechanism for each of the following reaction



(b) State Huckel's rule (1mk)

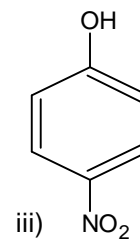
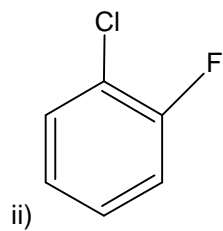
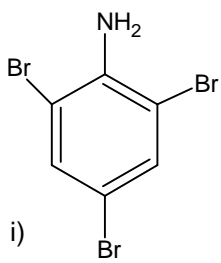
(c) Classify each of the following molecules or ion as aromatic, anti-aromatic or non-aromatic



d) Give the structures of the following compounds

- i. o-Bromoaniline (2mks)
- ii. m-Nitrobenzoic acid (2mks)
- iii. 4-Chloro-2-nitrotoluene (2mks)

e) Name the following aromatic compounds



(6 mks)