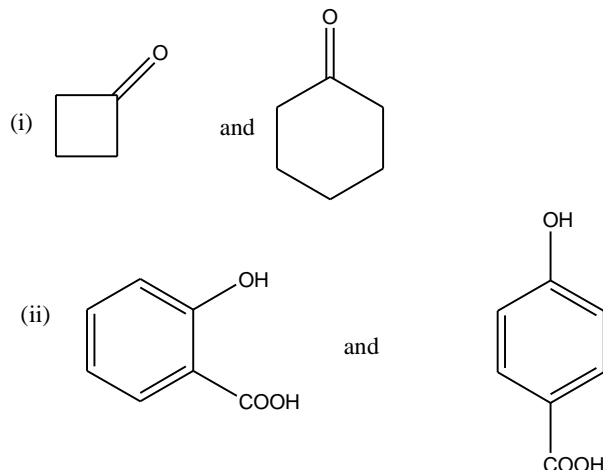


**Chemistry (AC-101) Assignment II**  
**Due Date: November 08, 2019 (5.00 PM)**  
**Format Accepted: Handwritten**

1. What do you understand by functionality of a polymer? Classify the following on the basis of their functionality: Ethylene glycol, Vinyl chloride, Lactic acid, Phenol
2. How will you distinguish between the following pairs on the basis of IR spectroscopy?



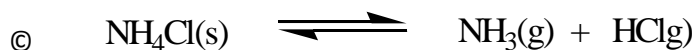
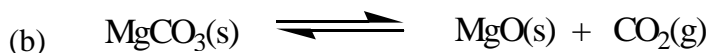
3. Propose the structure for the compound that fit the following  $^1\text{H}$  NMR data:

(a)  $\text{C}_5\text{H}_{10}\text{O}$   
 $\delta$  0.95, 6H, doublet  
 $\delta$  2.10, 3H, singlet  
 $\delta$  2.43, 1H, multiplet

(a)  $\text{C}_4\text{H}_7\text{BrO}$   
 $\delta$  2.11, 3H, singlet  
 $\delta$  3.52, 2H, triplet  
 $\delta$  4.40, 2H, triplet

4. Equal weights of polymer molecules with molecular weights 20,000 g/mol and 200,000 g/mol are mixed. Calculate number average molecular weight and weight average molecular weight.
5. What are secondary batteries? Describe the construction of one secondary battery. Write the charging and discharging reactions and mention its applications.
6. Explain the term component. How many components are present in the following system?

(a) A solution of common salt



7. Write short notes on
  - (a) Green solvents
  - (b) Lithium ion battery

