

# Organic: Assignment

1. Give a comparative account of the reaction (if any) of alkanes, alkenes and aromatic hydrocarbons with:
  - a. HCl
  - b.  $\text{H}_2\text{SO}_4$
  - c.  $\text{Cl}_2$Outline the mechanism for the reaction between:
  - i.  $\text{Br}_2$  and an alkane
  - ii.  $\text{HNO}_3$  and  $\text{C}_6\text{H}_6$
2. The following are terms often associated with different types of isomerism found in organic chemistry:
  - a. Chain
  - b. Positional
  - c. Functional group
  - d. Geometrical
  - e. Optical
3. Mentions briefly three reactions in which benzene reacts as a saturated compound. For each reaction, name the reagent, state the conditions, and write a balanced equation.
4. Compare and contrast the reactions of the  $-\text{OH}$  group in phenol and ethanol. Account for the differences.
5.
  - a. List each of the following sets of compounds in order of decreasing reactivity towards electrophilic substitution:  
benzene, phenol, toluene, nitrobenzene, aniline, bromobenzene
  - b. Indicate the compound that would be the least reactive in an electrophilic substitution reaction.
  - c. Indicate the compound that would yield the highest percentage of meta product.