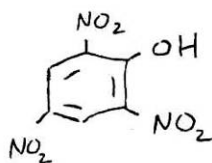
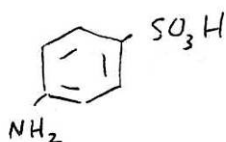
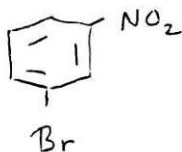
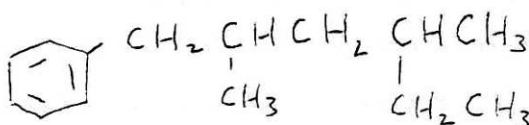
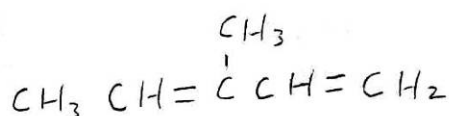
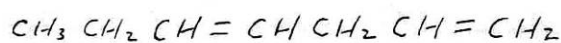
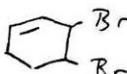
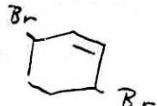


Chemistry 2425 Practice Problems

Chapters 14-16

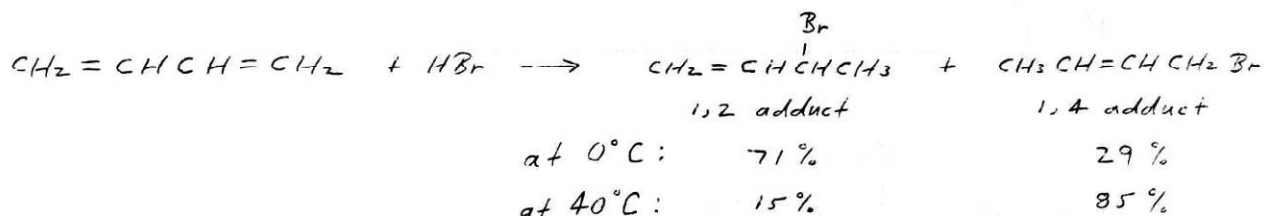
i. Name the following compounds :



2 Reaction of  with one equivalent of Br_2 yields the products  and .

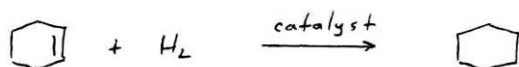
Explain.

3 Given the following results from the reaction of 1,3-butadiene with HBr at 0°C and 40°C :



- Which product is the "kinetic product" (forms faster)?
- Which product is the "thermodynamic product" (most stable)?
- Which product requires the lower activation energy (after formation of the allylic carbocation intermediate)?
- Which product is formed in higher yield if equilibrium is achieved?

4 Hydrogenation of cyclohexene to form cyclohexane,



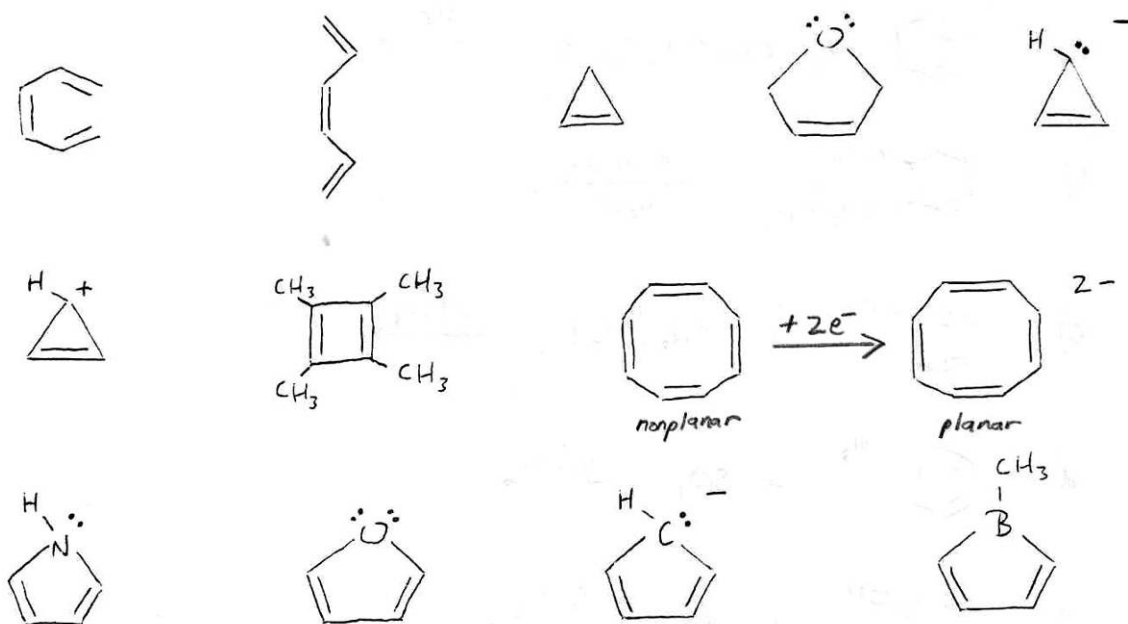
occurs readily, but the analogous reaction with benzene,



is much more difficult.

Explain.

5 Aromatic or nonaromatic or antiaromatic?



6 Write the general mechanism of the reaction of benzene with the electrophile E^+ .

7 Draw all of the resonance structures of aniline, On the basis of your structures, which ring positions should interact most favorably with an electrophile E^+ ?

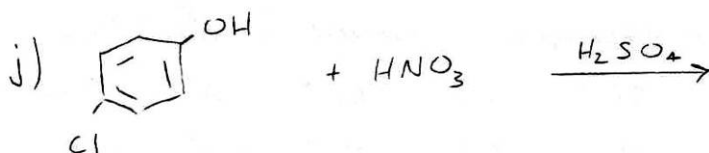
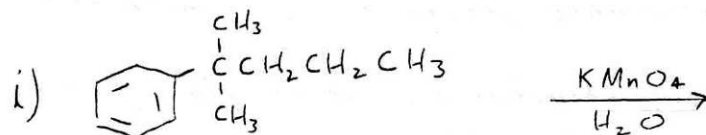
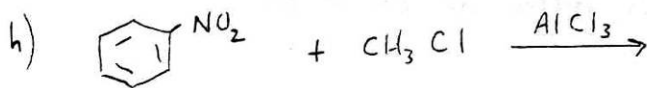
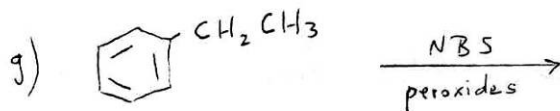
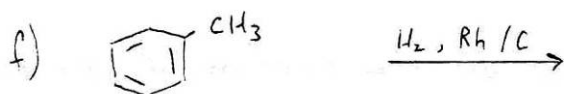
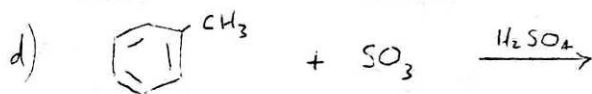
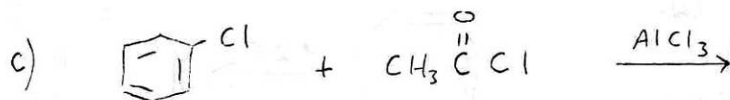
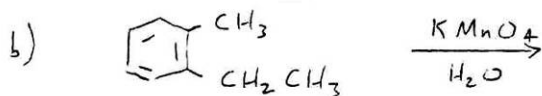
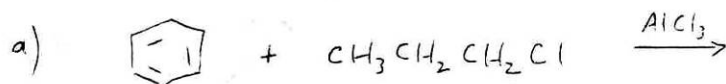
8 Draw all of the resonance structures of benzonitrile, On the basis of your structures, which ring positions should interact least favorably with an electrophile E^+ ?

9 Identify the correct electrophile involved in the following reactions:

a) Chlorination: Cl^- Cl Cl^+ $AlCl_3$ $FeCl_3$

b) Nitration: N NO_2 NO_2^+ NO_3^- HNO_3 H_2SO_4

10 Complete the following reactions :



11 Starting with benzene and any other reagents, show by a series of reactions how you could synthesize the following compounds:

