

1. How can you tell whether a specific phase is aqueous or organic? (2 pts)

Mix it with water in a test tube

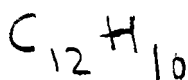
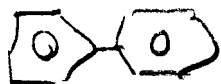
2. Assume that you use 100.0 mL of 37% hydrochloric acid, density 1.18. How many moles of HCl does that correspond to (atomic weights: O, 15.999; H, 1.008; Cl, 35.453)?

(4 pts)

$$\text{MW}(\text{HCl}) = 36.46$$

$$\frac{118 \times 0.37}{36.46} = \underline{1.20 \text{ moles}}$$

3. Show both structural and molecular formulas for biphenyl! (4 pts)



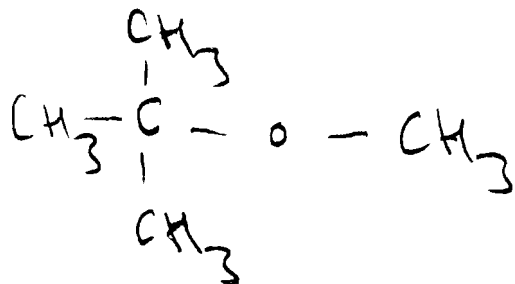
4. Would you expect to find the following compound in the aqueous phase or the organic phase? (3 pts)

a. Biphenyl at pH 2: organic

b. Biphenyl at pH 10: organic

c. Aniline at pH 10: organic

5. Show a structural formula and a full, valid name for MTBE (2 pt)



tert-butyl methyl ether