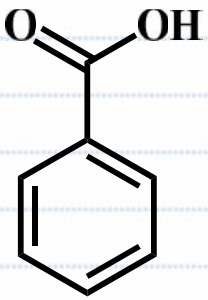
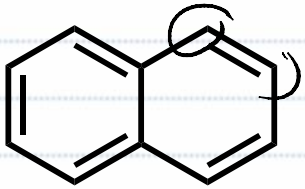
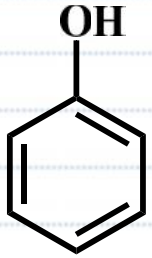
Extraction – Isolation of Three Organic compounds



An Organic Acid



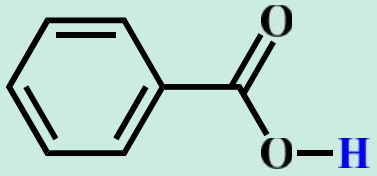
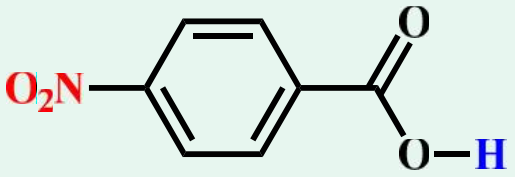
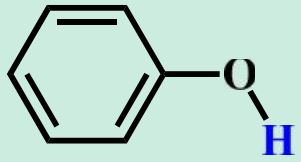
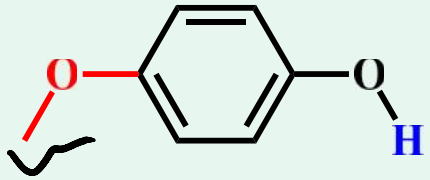
A Neutral Compound



A Phenol - but still an acid

Extraction – A Crash Course Review on Acid/Base

The lower the pKa of a particular proton, the more acidic.

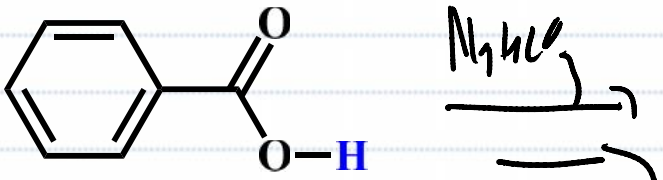
Molecule	pKa of Blue Proton
	4.2
	3.41
	9.9
	10.2

Note – the pKa's are affected by the groups red for reasons you will get to in 266.

Extraction – A Crash Course Review on Acid/Base

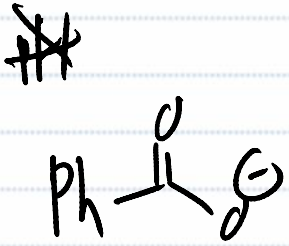
Recall – acid/base equilibria will always favor the side with the ACID or CONJ ACID that has the HIGHER pKa!

Example -

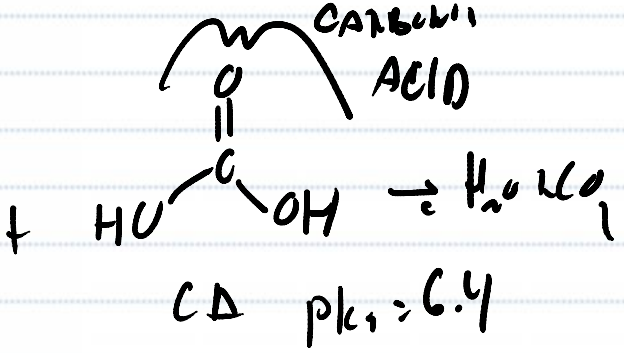


4.2 = pKa

NaHCO3



CB

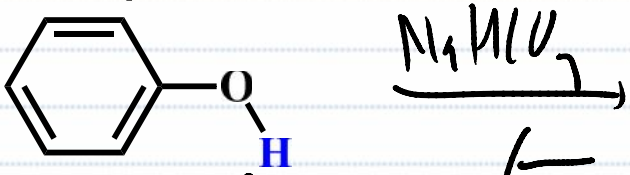


solubility? Organic solvent

H2O soluble

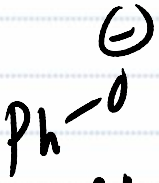
solubility?

Example -



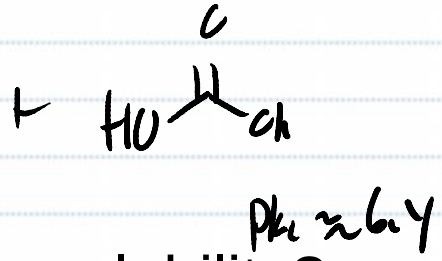
9.9 = pKa

NaHCO3



CB

H2O soluble



solubility? org. soluble

solubility?

Most of our compounds have both polar and non-polar character.

However, the Grease (non-polar) outweighs the polar.

Extraction – The Technique(s)

Our organic solvent: TBME

Fairly immiscible (insoluble) with water, actually, it is 3.5% (by volume) miscibility with water. Drying agent anybody?

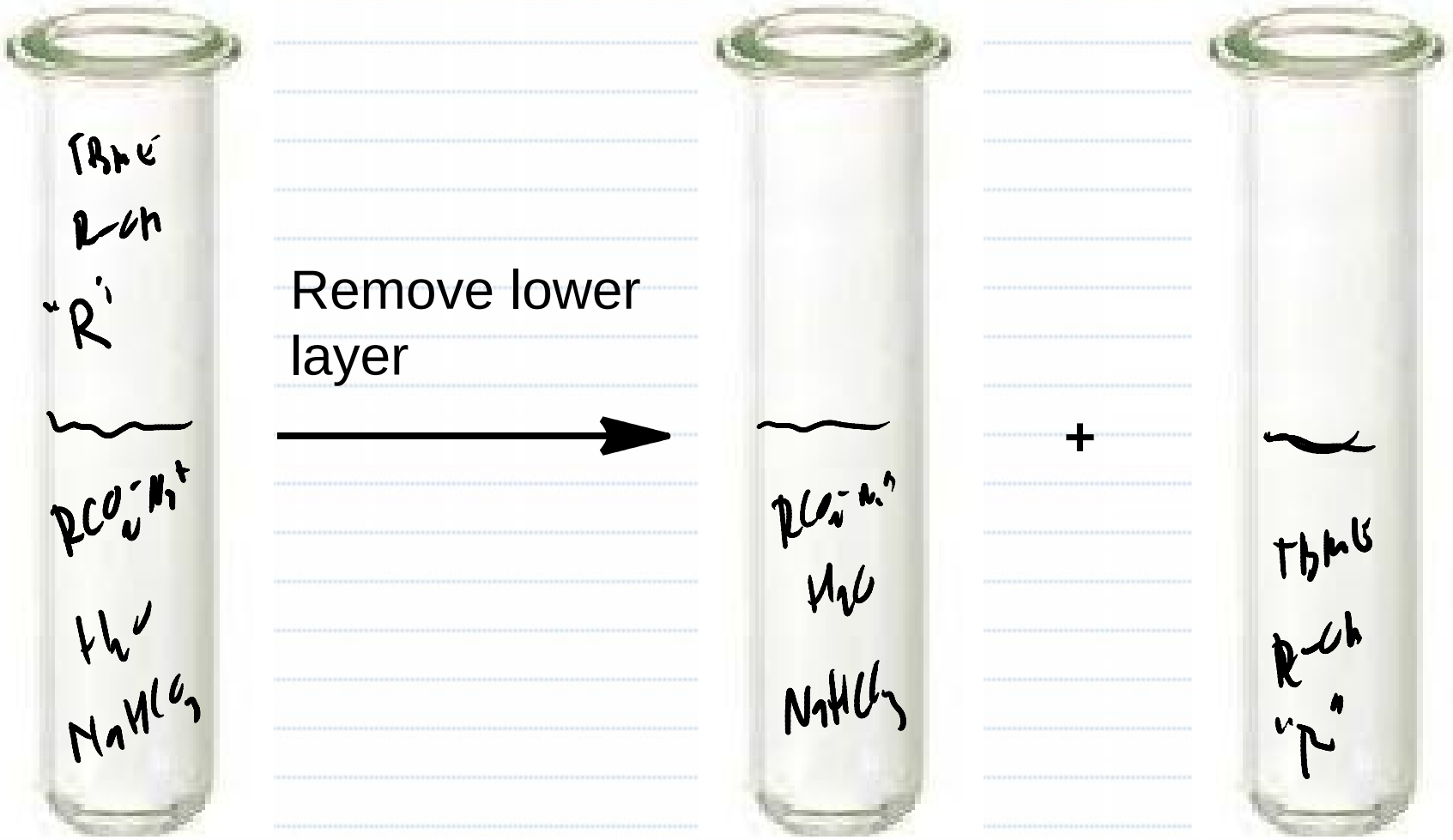
Dissolve unknown in TBME

1. Add sat'd, aq $NaHCO_3$
2. Agitate
3. Let layers separate

What happens?

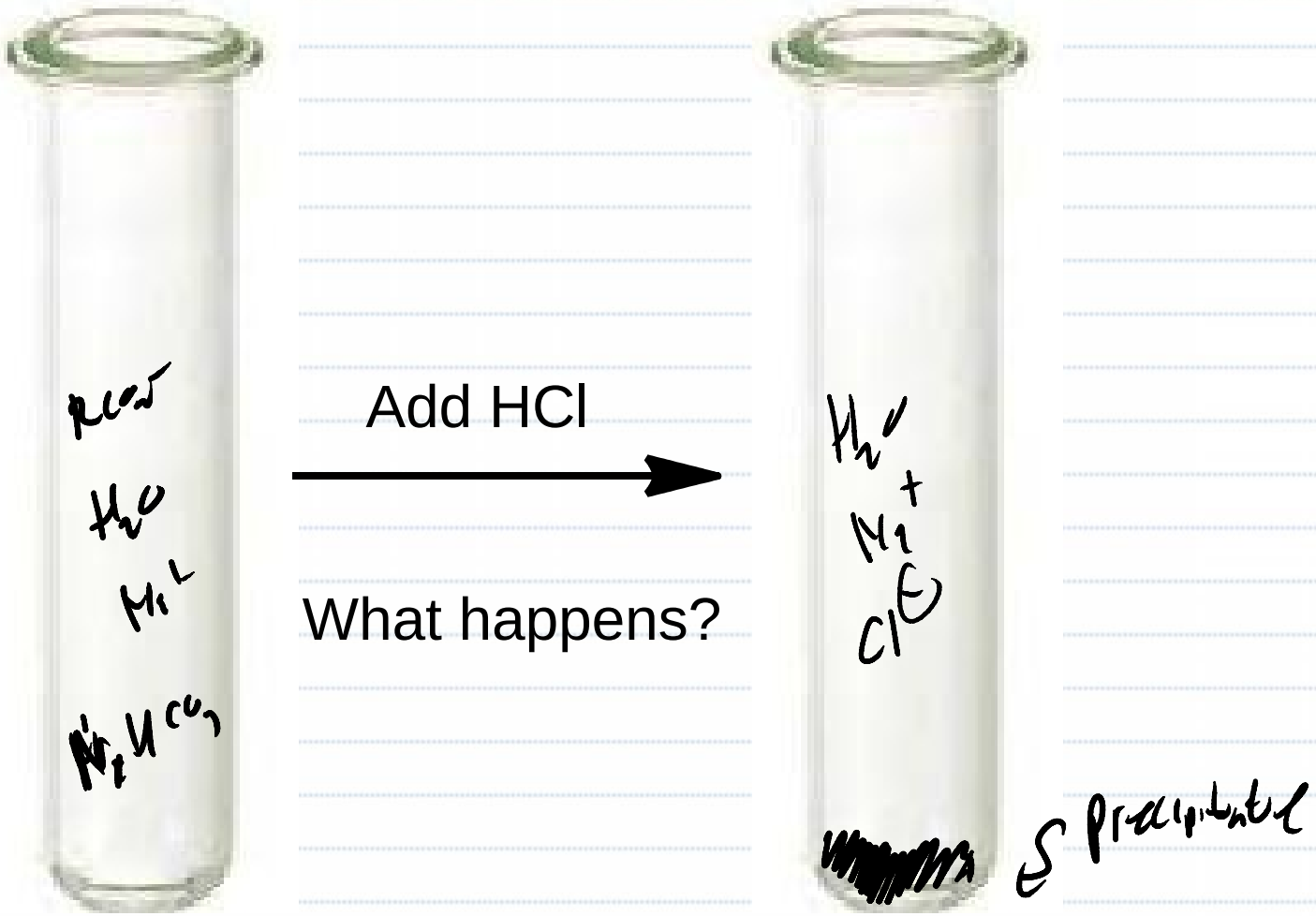
Which layer is which?

Extraction – The Technique(s)



Lower layer is more easily removed via Pasteur pipet.

Extraction – The Technique(s)



Extraction – The Technique(s)

Things to Watch out for and note:

- Confusion! Label tubes!
- Know your layers
- Effective time management
- Quantitative transfer