

① Pull entire contents of the product flask out using a non-filter pipette

② Transfer the product to the top of the filter pipette (solids ok)

③ Place a bulb on the pipette and force the product through the filter.

Spectroscopy -

Electromagnetic spectrum (EM)

$$c = \lambda \cdot \nu$$

speed of light \rightarrow c

wavelength (m) \rightarrow λ

frequency (Hz $\equiv \frac{1}{s}$ or s^{-1}) \rightarrow ν

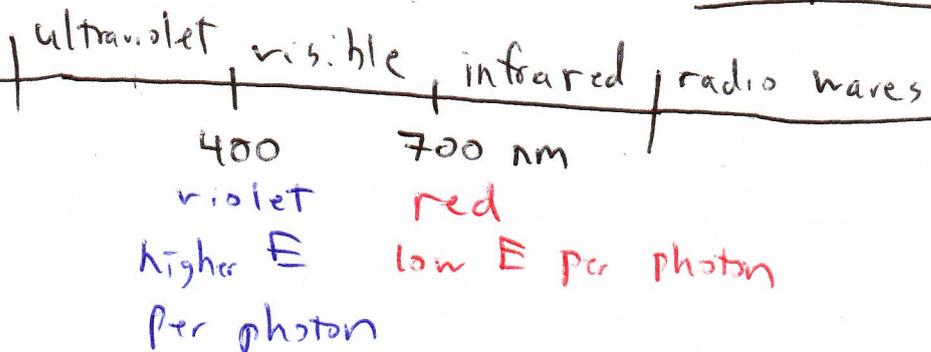
$$E = h\nu$$

energy per photon (particle) \rightarrow E

Planck's constant \rightarrow h

frequency (wave) \rightarrow ν

$E \uparrow$ $\Delta E = h\nu$ In order for this energy gap to be crossed, light with the correct frequency - and therefore the correct energy per photon - must be used.



UV-Vis - ultraviolet / visible

- electronic energy levels → electronic structure
transitions between

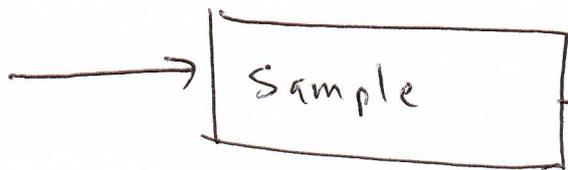
#2

IR - infrared

- vibrational transitions → bond types
functional groups

NMR - Nuclear magnetic resonance

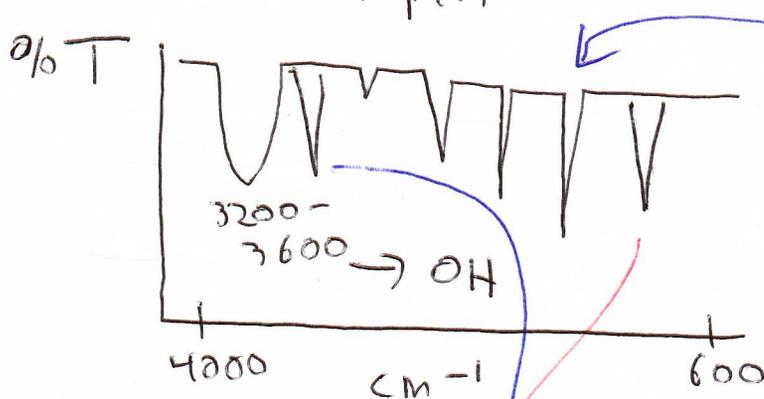
- radio waves → used to determine full chemical structure



light source

% transmittance - the % of light that successfully passes through a sample.

absorbance - the fraction of light absorbed by the sample.



peak
each peak corresponds to particular mode of bond vibration

2850-2970 - alkyl groups
600-800 → C-C³
C-C