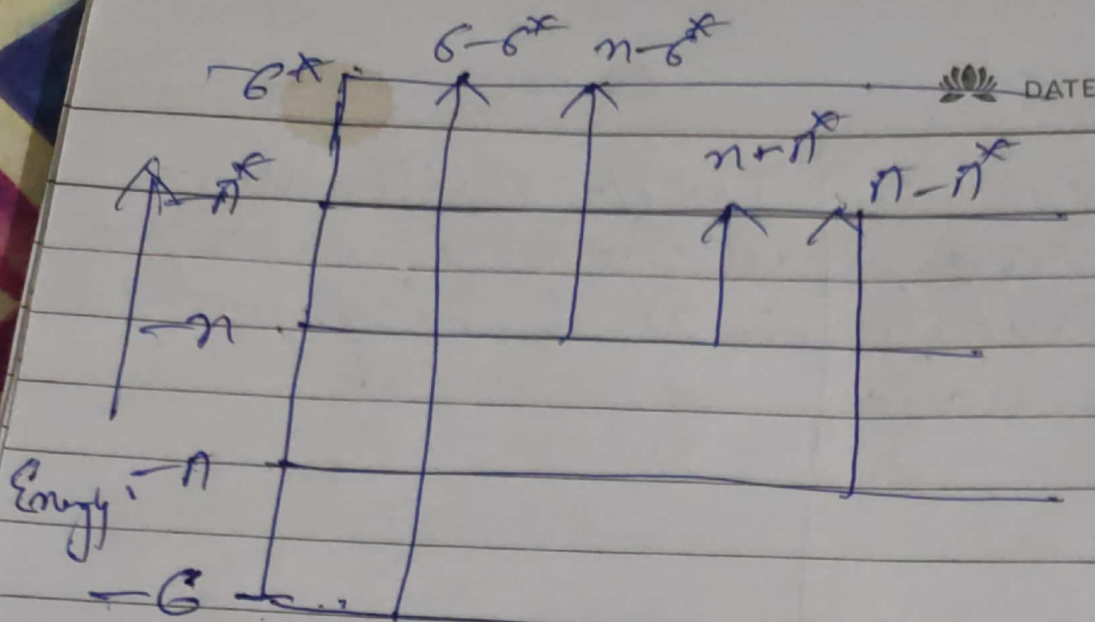


Types of Electronic Transitions

selection rule for electronic transition:

Type	Region	λ (nm)
① $6 \rightarrow 6^*$	Vacuum UV	< 150 nm.
$n \rightarrow 6^*$	Vacuum UV near UV	150-250 nm.
$n \rightarrow n^*$	near UV visible	180-700 nm.
$n \rightarrow n^*$	near UV visible	180-700 nm.



Transitions

Energy level

- 1) The spectra of poly atomic molecules are interpreted in terms of the Lambert-Beer Law
- 2) Electronic Transitions are broadly classified as $\sigma \rightarrow \sigma^*$, $n \rightarrow \sigma^*$, $\pi \rightarrow \sigma^*$ and $n \rightarrow \pi^*$
- 3) The last two transitions are most important in molecules that contain heteroatoms and double bonds

4) Position of bands are affected by conjugation. which results in bathochromic shifts for both $n-\pi^*$ and $\pi-\pi^*$ transitions

5) The $n-\pi^*$ transitions are forbidden by the orbital selection rules but occur as weak transitions.

6) Changing the solvent polarity results in shifts in opposite directions for $\pi-\pi^*$ and $n-\pi^*$ transitions

7) Because of the smaller energy gap, $n-\pi^*$ transitions are at longer wavelengths than $\pi-\pi^*$ transitions. Through extended conjugation may change the energy order