



① $\sigma \rightarrow \sigma^*$ transition :-

It is a high energy process as σ -bonds are generally strong bonds.

Saturated hydrocarbons like methane, propane etc show such type of transition.

② $n \rightarrow \sigma^*$ transition :-

Such type of transition takes place in saturated compound which contains a hetero atom such as Cl, N, O.

eg \rightarrow Saturated halide, alcohol, ether, aldehyde, ketone, amine etc.

③ $\pi \rightarrow \pi^*$ transition :-

Such type of transition occurs in the unsaturated hydrocarbon contains double bond, triple bond and also in aromatic.

eg \rightarrow Alkene, Alkyne, Carbonyl compound, cyanide, etc



④ $n \rightarrow \pi^*$ transition :-

Such type of transition occurs in the hetero atoms gets excited to π^* antibonding orbital.

Saturated aldehyde, saturated ketones show both types of transitions -

① low energy, $n \rightarrow \pi^*$

② High energy, $\pi \rightarrow \pi^*$.

selection Rule -

① The transition between s to p-orbital and p-p orbitals are allowed transition. ($\Delta l = \pm 1$)

② The transition which involves a change in the spin quantum no. of an electron during the transition do not occur. Thus singlet-triplet transitions are forbidden.

③ The transition between orbitals of different symmetry do not occur
eg $n \rightarrow \pi^*$ transitions are forbidden

④ The transition from s to s orbital and from p to p orbital are forbidden.
↓ ($\Delta l = 0$).



TITLE

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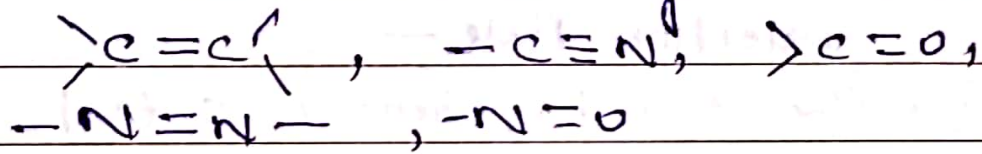
Mo Tu We Th Fr Sa Su

* chromophores :-

chroma = colour.

All those compounds which absorb light of wave length (λ) between 400 - 800 nm appears coloured to the human eye. Thus a chromophore are considered as any system which is responsible for imparting colour to the compound.

The chromophoric groups are -



Simple chromophores like ethylene, acetylene undergoes $\pi - \pi^*$ transition in the shorter wave length (λ).

Compound containing atoms as $-\ddot{O}-$, $-\ddot{S}-$, $>N:$ show absorption due to $n - \sigma^*$ transitions.

