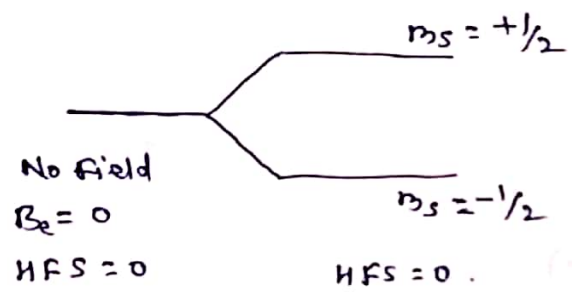


* Spectra of $\cdot\text{CH}_2\text{OH}$:-

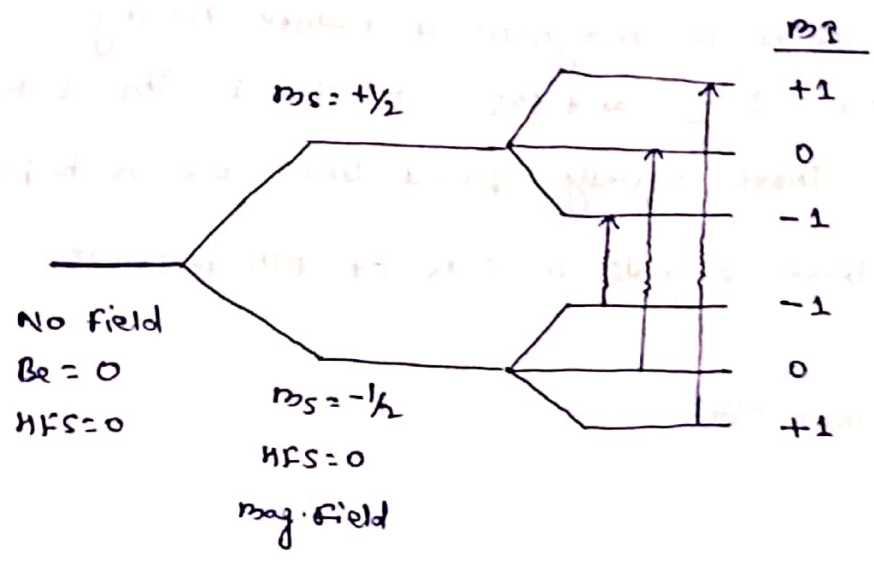
$\cdot\text{CH}_2\text{OH}$ consists of one unpaired electron with nuclear spin $I = 1$. and $m_s = \pm 1/2$ and $m_I = +1, 0, -1$.

When this species is placed in magnetic field due to splitting we get two electronic sub-levels.

- (a) One corresponding to $m_s = +1/2$
- (b) other " " $m_s = -1/2$



Each electronic sub-levels will be influenced by three different types causing by hyperfine splitting as shown below :-

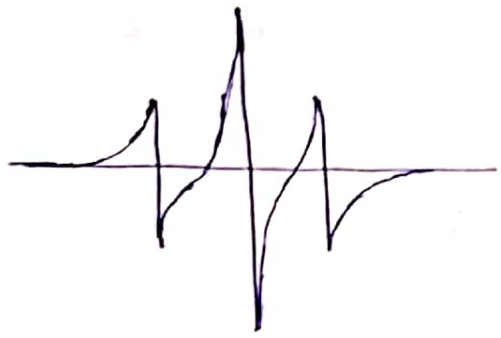


Thus, we get three signals (peaks) in ESR of CH_3OH .

Intensity ratio

$$\begin{aligned}
 (x+1)^2 &= x^2 + 2x + 1 \\
 &= 1 : 2 : 1
 \end{aligned}$$

Experimental spectrum:-



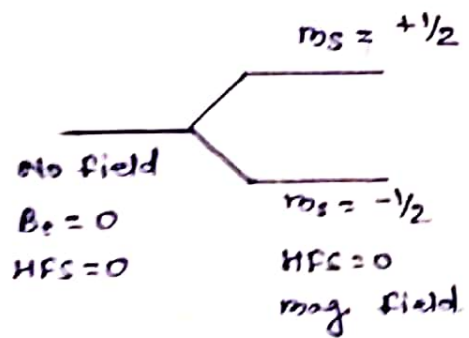
(1 : 2 : 1)

(Derivative Curve)

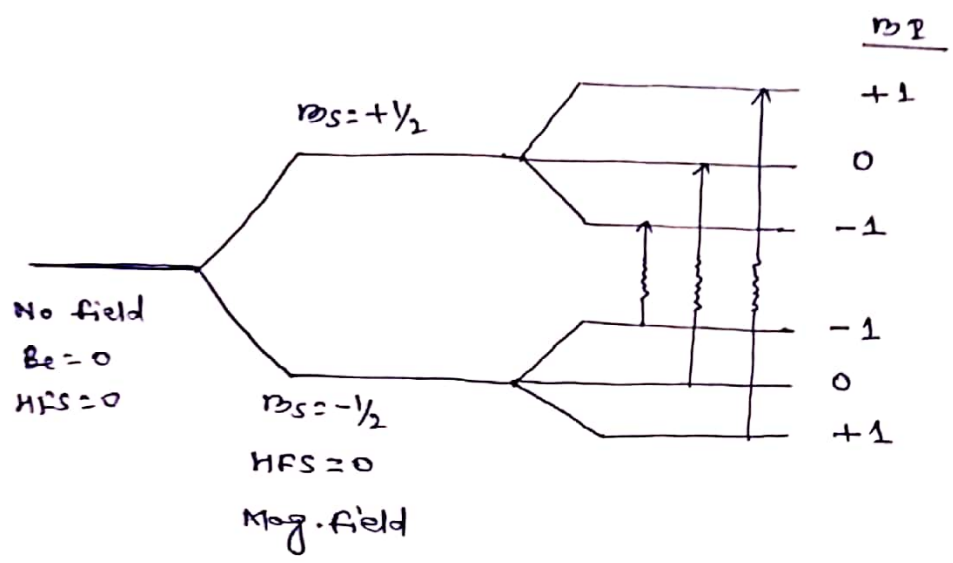
* Spectra of NO :-

There are one unpaired electron on N-atom and the nucleus of N-atom is magnetic in nature having $I = 1$. and $m_s = \pm 1/2$ and $m_I = +1, 0, -1$. The ESR spectra contains three equally spaced lines i.e. a triplet.

Thus, we get three signals in ESR of NO molecules.



Each electronic sub-levels will be influenced by three different types causing by hyperfine splitting as shown below:-

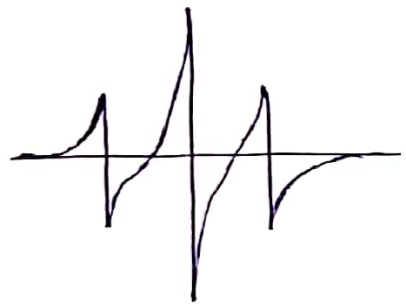


Thus, we get three signals (peaks) in ESR spectrum of NO molecule.

Intensity ratio :-

$$\begin{aligned}
 (x+1)^2 &= x^2 + 2x + 1 \\
 &= 1 : 2 : 1
 \end{aligned}$$

Experimental spectrum :-



1 : 2 : 1

(Derivative Curve)

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