

**IB Chemistry HL Notes**

# **Equilibrium**

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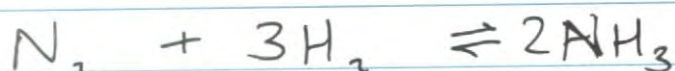
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# EQUILIBRIUM

A reaction that is reversible:



For example:



\* At the start  $t = 0$ :

Amount of  $A + B = \text{maximum}$

" "  $C + D = 0$

Rate of reaction  $\uparrow$   $A+B = \text{maximum}$

" " \*  $C+D = 0$

DYNAMIC  
EQUILIBRIUM

\* During reaction  $t = x$ :

Amt  $A + B = \text{decrease}$

Amt  $C + D = \text{increase}$

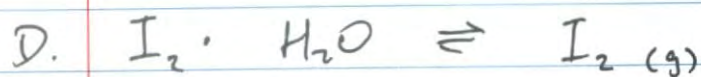
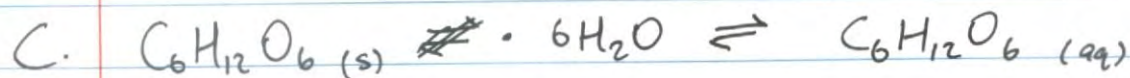
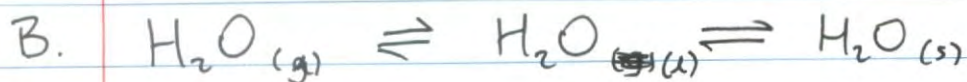
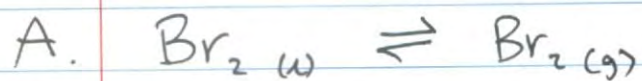
\* ~~Rate of~~ At EQUILIBRIUM, the rate of the forward reaction is equal to the rate of the backward reaction.

\* At equilibrium, the amounts of  $A, B, C, D$  ~~are~~ are constants, but not equal (not necessarily)

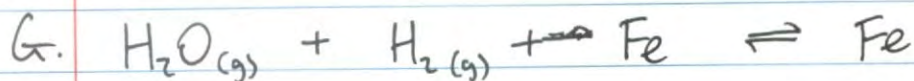
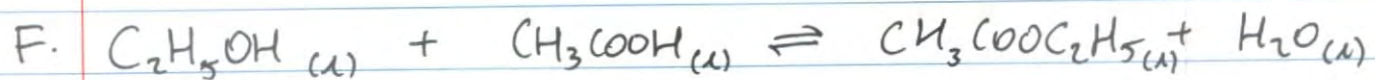
Position of equilibrium

If mass/amount of  $A+B >$  that of  $C+D$ , we say position of equilibrium is lying to the left.

## Equilibrium Equations



E.

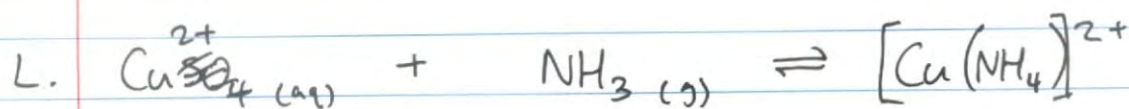


H.

I.

J.

K.



NB/  $400^\circ\text{C} - 500^\circ\text{C}$  is the temperature that covalent bonds break.