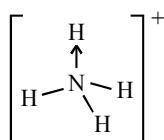


1.3 – STRUCTURE & BONDING – PPQ4



Name Form

- 4) a) An ammonium ion, made by the reaction between an ammonia molecule and a hydrogen ion, can be represented as shown in the diagram below.



- i) Name the type of bond represented in the diagram by N—H.
- ii) Name the type of bond represented in the diagram by N→H.
- iii) In terms of electrons, explain why an arrow is used to represent this N→H bond.

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- iv) In terms of electron pairs, explain why the bond angles in the NH_4^+ ion are all $109^\circ 28'$.

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..... (7)

- b) Define the term *electronegativity*.

.....

..... (2)

- c) A bond between nitrogen and hydrogen can be represented as $\overset{\delta-}{\text{N}}-\overset{\delta+}{\text{H}}$

- i) In this representation, what is the meaning of the symbol $\delta+$?
-
- ii) From this bond representation, what can be deduced about the electronegativity of hydrogen relative to that of nitrogen?

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..... (2)

(CHM1 Summer 2002)