

HSO_4^- is conjugate base. But it is

also an acid because it loses H^+ .



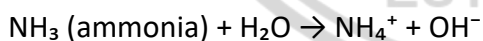
'B' has incomplete octet.



Explanation:

Concept	Acid	Base
Bronsted-Lowry	Proton donor	Proton acceptor
Lewis	Electron pair acceptor	Electron pair donor
Arrhenius	Produces H^+ in water	Produces OH^- in water

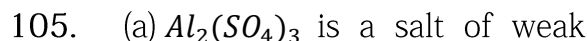
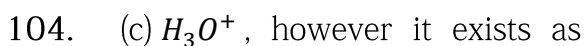
Example:



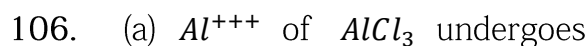
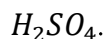
$\rightarrow NH_3$ accepts H^+ , so it is a

Bronsted-Lowry base.

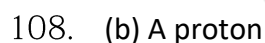
So, correct answer \rightarrow (c)



base $Al_2(OH)_3$ and strong acid



hydrolysis.



Explanation:

Concept	Acid Definition	Base Definition
Bronsted-Lowry	Proton (H^+) donor	Proton (H^+) acceptor

Example:



Here, HCl donates H^+ , so it is a

Bronsted-Lowry acid.



111. (b) According to Bronsted principle

HNO_3 is acid they give H^+ in aqueous solution and form NO_3^- .

Species	Lewis Acid/Base?	Bronsted Acid/Base?	Reason
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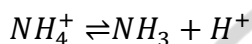
cannot donate H^+

112. (c) $H_2O + H_2O \rightleftharpoons H_3O^+ + OH^-$.

Species	Lewis base	Bronsted base	Reason
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Accepts proton (H^+)

113. (c) NH_4^+ is a conjugate acid;



116. (d) HCl is a strong acid its

conjugate base means Cl^- is a weak base.

114. (a) $AlCl_3 + 3H_2O \rightleftharpoons Al(OH)_3 +$

$3HCl$
Strong acid

117. (d) Hydrazoic acid (HN_3) is a

115. (c) BF_3

Lewis acid.

Explanation:

118. (c) Smaller the pK_a value than.

Species	Lewis Acid/Base?	Bronsted Acid/Base?	Reason
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Stronger the acid.

NH_2^-	Lewis base	Bronsted base	Has lone pair \rightarrow can donate e^-
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119. (c) $FeCl_3$

Explanation:

When these salts dissolve in water, they undergo hydrolysis.

Some metal ions act as Lewis acids because they can accept electron pairs from water molecules.

O^{2-}	Lewis base	Bronsted base	Strong base \rightarrow accepts H^+
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BF_3	Lewis acid	NOT a Bronsted acid	Electron pair acceptor, but
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Compound	Behaviour in Water	Acidity
$AlCl_3$	Hydrolyzes	Acidic

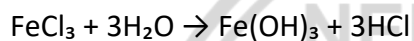




Compound	Behaviour in Water	Acidity
BeCl_2	Weak hydrolysis	Less acidic
FeCl_3	Strong hydrolysis	Most acidic
None	—	—

Fe^{3+} ion has the highest charge density \rightarrow it strongly polarizes water molecules \rightarrow releases H^+ ions easily \rightarrow strong acidity.

Hydrolysis Reaction (Word-Friendly):



\rightarrow HCl released \rightarrow solution becomes

strongly acidic

120. (c) BF_3 is acidic because due to

Lewis concept it accept a lone

pair of electron.

