Answer on Question #42598, Chemistry, Other

Question:

M1X and M2X are the salts of a weak base and strong acid. Kh values for them are 10–7 and 10–4 respectively. Kb for M3OH is 10–4 . The decreasing order of base strength would be :
(1) M2OH, M1OH, M3OH
(2) M1OH, M3OH, M2OH
(3) M3OH, M1OH, M2OH
(4) M1OH, M2OH, M3OH

Solution:

Hydrolysis constant of salt obtained from Strong acid and Weak base is:
$Kh = Kw/Kb$
Therefore:
$Kb = Kw/Kh$
$Kb(M1OH) = 10^{-14}/10^{-7} = 10^{-7}$
$Kb(M2OH) = 10^{-14}/10^{-4} = 10^{-10}$
And the decreasing order of base strength (Kb) would be $10^{-4} > 10^{-7} > 10^{-10}$

Answer: (3) M3OH, M1OH, M2OH.