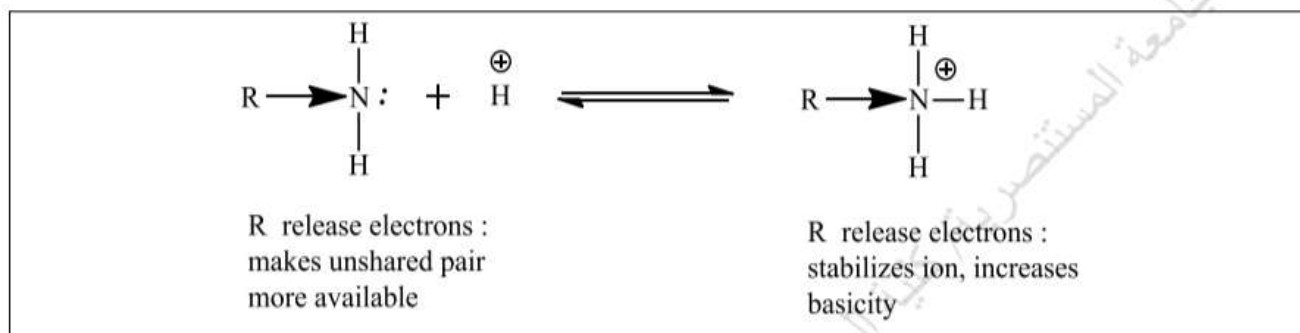


Experiment ten

Acetanilide

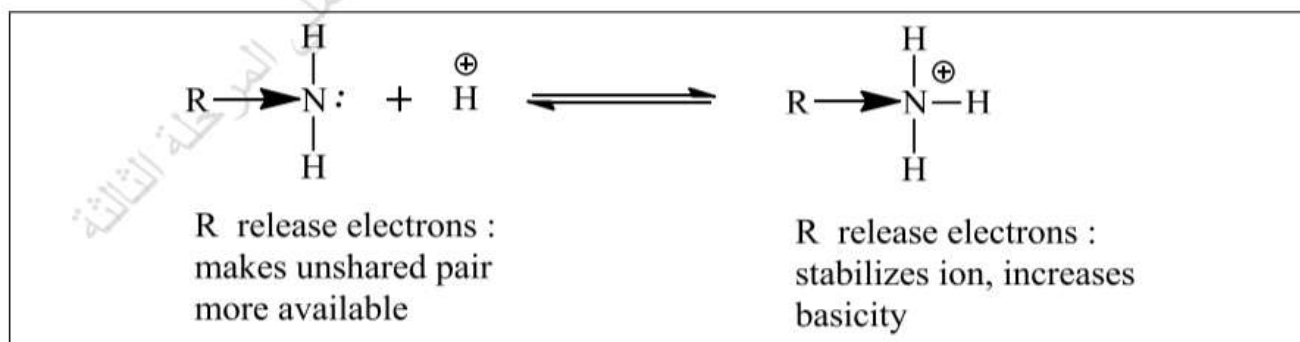
Amines are convenient to compare basicity's by measuring the extent to which they accept hydrogen ion from water; the equilibrium constant for this reaction we combine with $[H_2O]$ to obtain the basicity's constant, K_b .



Each amine has its characteristic K_b ; the larger the K_b , the stronger the base . Measurement of $[OH^-]$ is simply a convenient way to compare basicities .

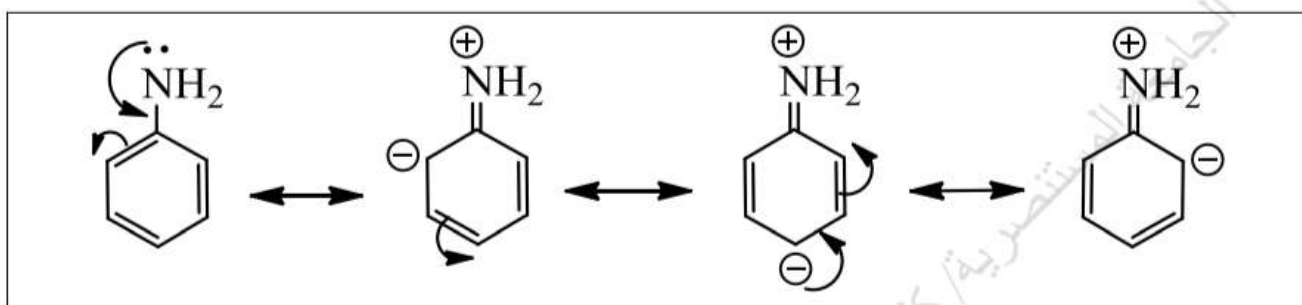
An aliphatic amine is more basic than ammonia ?

Because the electron-releasing alkyl groups tend to disperse the positive charge of the substituted ammonium ion , and therefore stabilize it in a way that is not possible for the substituted ammonium ion . Thus an ammonium ion is stabilized.



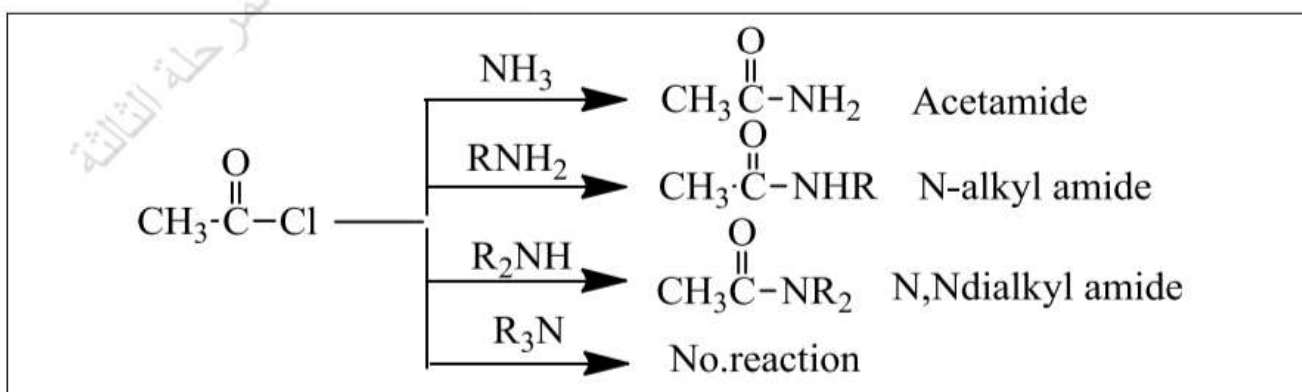
An aromatic amines are weaker bases than ammonia ?

Because electron release in the same way as carbocation. From another point view , we can consider that an alkyl group pushes electrons toward nitrogen , and thus makes the fourth pair more available for sharing with an acid.(The differences in basicity among primary, secondary, and tertiary aliphatic amines are due to a combination of solvation and polar factors).

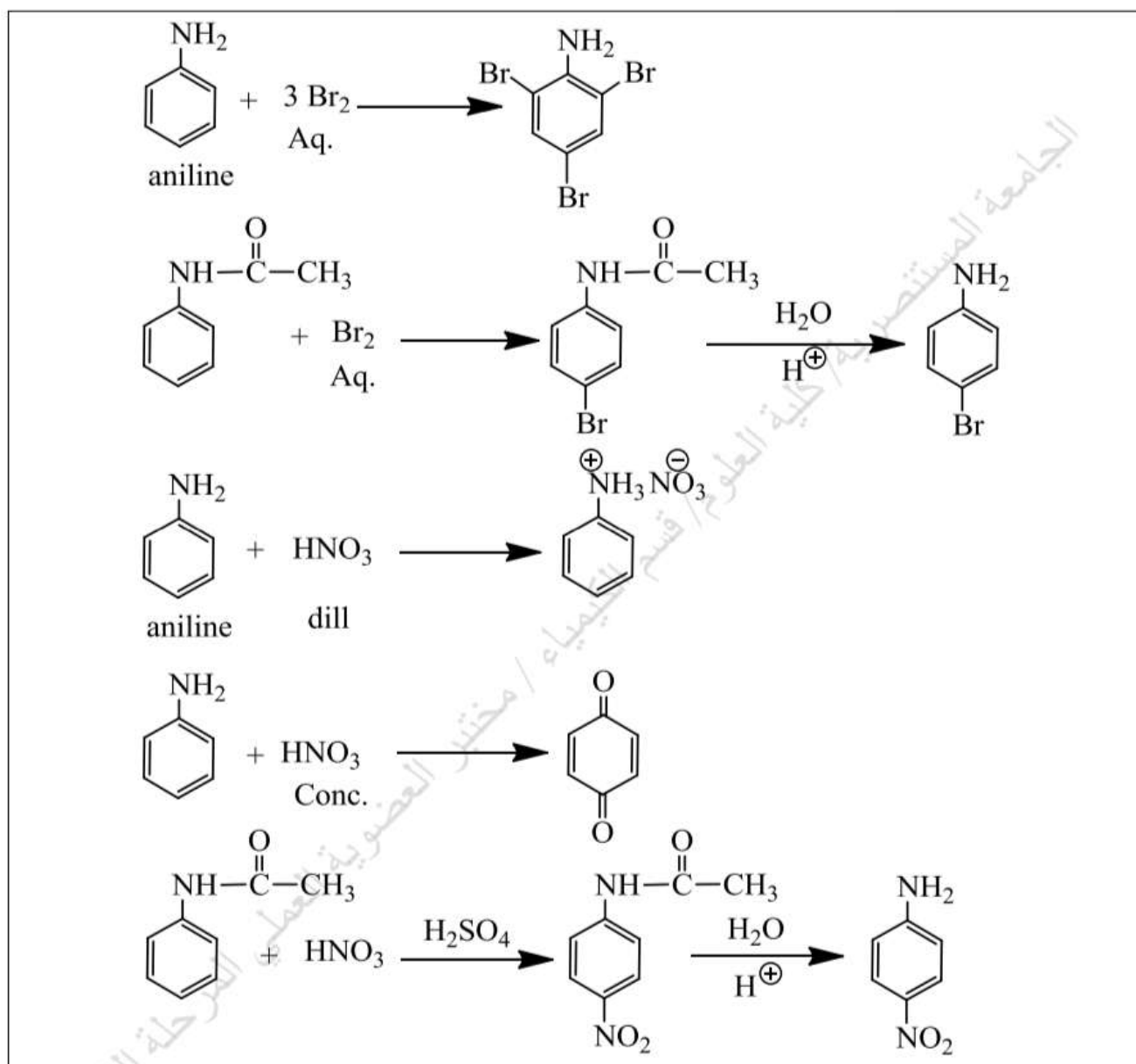


The low basicity of aromatic amines is thus due to the fact that the amine is stabilized by resonance to a greater extent than is the ion and the fourth pair of electrons is partly shared with the ring and is thus less available for sharing with hydrogen ion . The tendency (through resonance) for the -NH_2 group to release electrons to the aromatic ring more reaction toward necessarily makes the amine less basic. similar consideration apply to other aromatic amines .

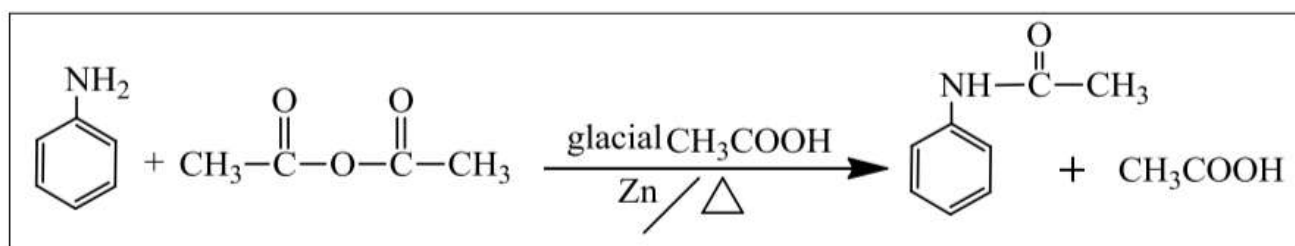
A similar way primary and secondary amines can react with derivatives of carboxylic acid to form substituted amides, compounds in which -Cl has been replaced by the -NHR or NR_2 group. Tertiary amines , although basic and hence nucleophilic, fail to yield amides.



Ring substitution aromatic ring :



The general question:



Experimental part:

1. In (100ml) round bottom flask, a mixture of (4ml) of Aniline , (4ml) of Acetic Anhydride, (0.5g) of zinc and (4ml) of glacial acetic acid are added and stirred
2. The mixture is reflux gently for (30mins) with occasional shaking until a clear solution is formed.
3. The mixture is cooled after reflux and poured into (50ml) of ice-cold water and with shaking for (5mins) until a white precipitate is formed.
4. The precipitate is washed several times with cold water.
5. The precipitate is filtered and dried.
6. The product is weighed and the percentage of yield is calculated .