

## Chemguide – questions

### AMINES: AS BASES

- What do you understand by
    - a Bronsted-Lowry base;
    - a Lewis base?
  - Explain why methylamine,  $\text{CH}_3\text{NH}_2$ , acts as a base in both of these senses.
- This question is about comparing the reactions of ammonia and methylamine as bases.
  - Write equations to show what happens when both of these compounds dissolve in water.
  - Explain why the compounds are acting as bases in these reactions with water.
  - Describe what happens when ammonia gas and methylamine gas come into contact with hydrogen chloride gas.
  - Write the formulae for the two compounds formed in these reactions, showing essential details of their structures.
  - Describe what happens if you add a few drops of ammonia solution or methylamine solution to a solution of copper(II) sulphate containing  $[\text{Cu}(\text{H}_2\text{O})_6]^{2+}$  ions.
  - Write equations to show what happens in these reactions.
  - Describe what happens if you add an excess of ammonia solution or methylamine solution to a solution of copper(II) sulphate containing  $[\text{Cu}(\text{H}_2\text{O})_6]^{2+}$  ions.
  - Write the formulae for the final copper-containing products of these reactions.
  - In what sense are ammonia and methylamine acting as bases in these last reactions?
- Write the equation for the reaction which happens when dimethylamine,  $(\text{CH}_3)_2\text{NH}$ , reacts with water.
  - Write the formula of the product of the reaction between trimethylamine gas,  $(\text{CH}_3)_3\text{N}$ , and hydrogen chloride gas, showing the essential details of its structure.