

6.2 Nitrogen compounds, polymers and synthesis

6.2.1 Amines

Basicity and preparation of amines					
(a) the basicity of amines in terms of proton acceptance by the nitrogen lone pair and the reactions of amines with dilute acids, e.g. HCl(aq) , to form salts					
(b) the preparation of: <ul style="list-style-type: none"> (i) aliphatic amines by substitution of haloalkanes with excess ethanolic ammonia and amines (ii) aromatic amines by reduction of nitroarenes using tin and concentrated hydrochloric acid. 					

6.2.2 Amino acids, amides and chirality

Reactions of amino acids					
(a) the general formula for an α -amino acid as $\text{RCH(NH}_2\text{)COOH}$ and the following reactions of amino acids: <ul style="list-style-type: none"> (i) reaction of the carboxylic acid group with alkalis and in the formation of esters (see also 6.1.3 c) (ii) reaction of the amine group with acids 					
Amides					
(b) structures of primary and secondary amides (see also 6.1.3 f, 6.2.3 a–b)					
Chirality					
(c) optical isomerism (an example of stereoisomerism, in terms of non-superimposable mirror images about a chiral centre)					
(d) identification of chiral centres in a molecule of any organic compound.					

6.2.3 Polyesters and polyamides

Condensation polymers					
(a) condensation polymerisation to form: <ul style="list-style-type: none"> (i) polyesters (ii) polyamides 					
(b) the acid and base hydrolysis of: <ul style="list-style-type: none"> (i) the ester groups in polyesters (ii) the amide groups in polyamides 					
(c) prediction from addition and condensation polymerisation of: <ul style="list-style-type: none"> (i) the repeat unit from a given monomer(s) (ii) the monomer(s) required for a given section of a polymer molecule (iii) the type of polymerisation. 					