Practice exam questions for Chapter 9 Carboxylic acid derivatives and polymers (Write-on version)

Question 1 (Bursary 2000 Question 6: modified)

Glucose units can be joined together by condensation polymerisation.

a i Define the term **condensation polymerisation**. A

_____

_____

_____

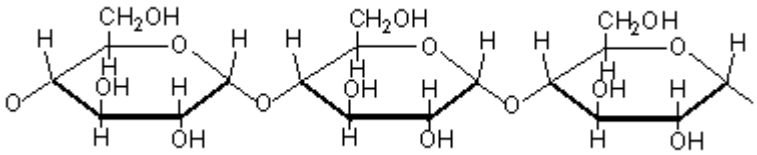
ii Name the other substance produced when glucose undergoes condensation polymerisation to form starch. A

_____

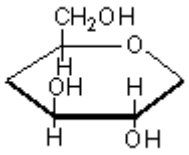
Starch can be hydrolysed into its component monomers.

b i Name the monomer. A _____

A section of a starch polymer is shown below.

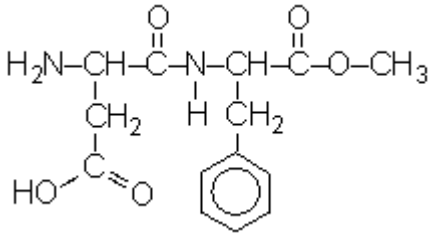


ii Complete the diagram below to show the structure of the monomer formed by the hydrolysis reaction in **a** above. A



Question 2 (Bursary 2001 Question 4: modified)

Diet soft drinks contain ‘Nutrasweet’, an artificial sweetener also known as **aspartame**. The structure of the molecule is shown below. It is a methyl ester of a dipeptide of the two amino acids, aspartic acid and phenylalanine.



i On the above diagram, draw a **CIRCLE** around the peptide link. A

ii On the diagram above, draw a **BOX** around the functional group that will most readily accept a proton when reacted with acid. A

Aspartame is a chiral molecule (it has optical isomers or enantiomers).

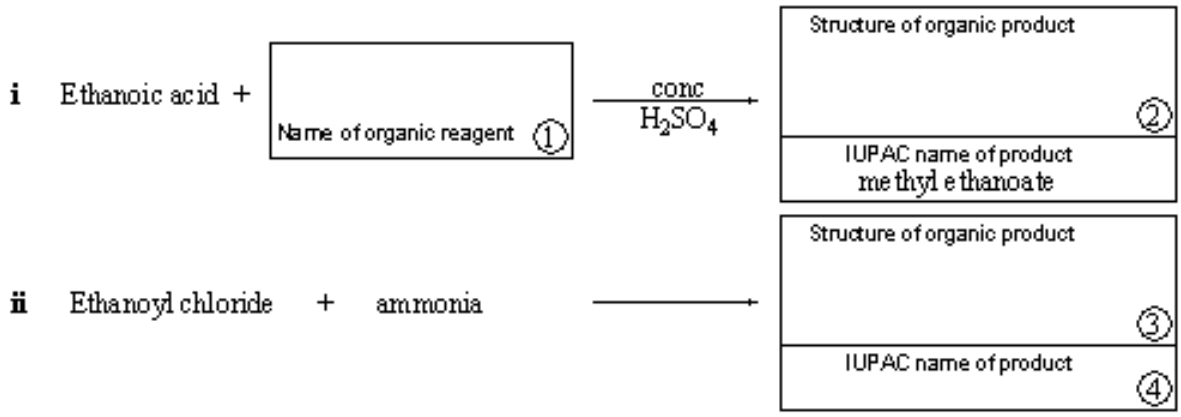
iii On the diagram above, draw a * next to a carbon responsible for this property. A

iv Write the general formula for an amino acid molecule. A

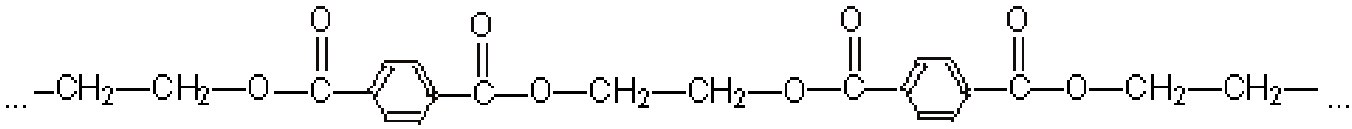
Question 3 (Bursary 1997 Section F Question 5)

Carboxylic acid derivatives

a Complete the following chemical equations by filling in the four numbered boxes below. A M



b The following structure is a section of the synthetic polymer sold as a fabric under the trade name *Terylene*.



i Draw the two compounds used to make this polymer. A M

ii Give the name for the type of polymer shown above A _____

iii Name the other molecule produced when this polymer is produced from the compounds in **b i**. A

_____