Organic chemistry 2006 VCE

Consider the molecule
$CH_3CH_2CH_2CH_2CHClCH_2CH_3$.

The systematic name of this molecule is
A. 5-chloroheptane.
B. 3-chloroheptane.
C. 5-chlorooctane.
D. 3-chlorooctane.

Solution

Solution will appear here

The raspberry- flavoured food additive, butyl methanoate, can be prepared from $CH_3CH_2CH_2CH_2OH$ using
A. an addition reaction with HCOOH.
B. an addition reaction with CH_3COOH.
C. a condensation reaction with HCOOH.
D. a condensation reaction with CH_3COOH.

Solution

Solution will appear here

The number of structural isomers that are carboxylic acids with the formula $C_4H_8O_2$ is
A. 1
B. 2
C. 3
D. 4

Solution

Solution will appear here

Two chemical reactions occur as follows.
CH_2=CH $CH_2CH_2CH_3$ + X → 2-chloropentane

and

2-chloropentane + sodium hydroxide solution → Y
X and Y are given by

A. X= Cl_2 and Y= $CH_3CH_2CH_2CHOHCH_3$
B. X= HCl and Y= $CH_3CH_2CH_2CHOHCH_3$
C.X= Cl_2 and Y= $CH_3CH_2CH_2CH_2CH_2OH$
D. X= HCl and Y= $CH_3CH_2CH_2CH_2CH_2OH$

Solution

Solution will appear here

A short section of a polymer molecule is shown below.
$CH_2CF_2CF_2CH_2CF_2CH_2CH_2CF_2CH_2$
This polymer could have been formed from
A. CF_2CH_2 only.
B. CF_2CF_2 and CH_2CH_2.
C. CF_2CF_2 and CH_2CHCF_3.
D. CH_3CHCF_2 and CF_3CHCF_2.

Solution

Solution will appear here

The molecule $HOCH_2CH_2CH_2COOH$ (molar mass = 104 g /mol) forms a polymer in which the average polymer molecule contains 1000 monomer units.
The approximate molar mass of the polymer, in g/mol, is
A. 68 000
B. 86 000
C. 95 000
D. 104 000

Solution

Solution will appear here

A student was given four colourless liquids that were labelled A, B, C and D. They were known to be ethanol, ethanoic acid, pentane and hexene, but the exact identity of each liquid was unknown.
The student tested the properties of three of the liquids and obtained the results shown on the right.

	A	B	C
Solubility in water	insoluble	soluble	soluble
Addition of red-coloured bromine (Br_2) solution	colour disappears	no immediate reaction	no immediate reaction
Addition of sodium carbonate (Na_2CO_3) powder	no reaction	gas evolved	no reaction

Identify each of the liquids.

Solution