Paper 1

Questions are applicable for both core and extended candidates

1 Which type of compound is also the name of a homologous series?

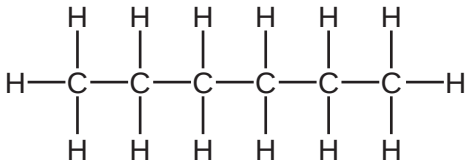
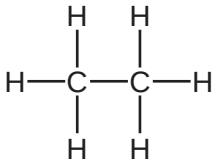
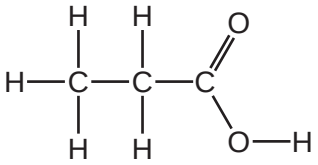
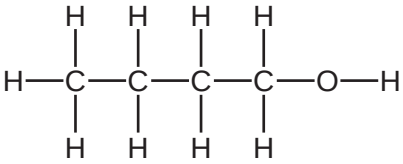
A carbonate

B carboxylic acid

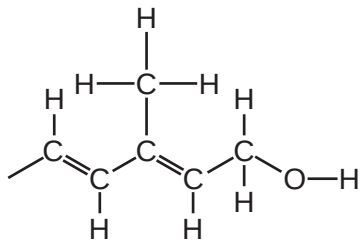
C halide

D hydroxide

2 Which row identifies the homologous series to which the molecular structure belongs?

	molecular structure	homologous series
A		alkane
B		alkene
C		alcohol
D		carboxylic acid

3 Part of the structure of a molecule of vitamin A is shown.



Which statements about this part of the structure are correct?

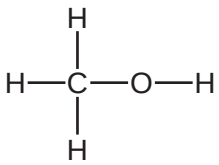
1 It is saturated.

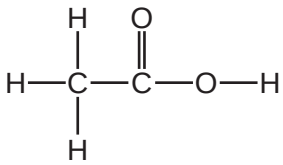
2 There are two alkene groups.

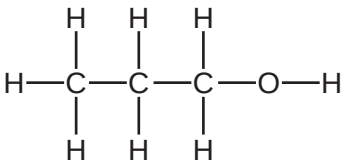
3 The structure shows a carboxylic acid.

A 1 and 3 **B** 1 only **C** 2 and 3 **D** 2 only

4 The structures of three organic molecules are shown.







Which description of the three molecules is correct?

	they all have the same general formula, $C_nH_{2n+1}OH$	they all belong to the same homologous series
A	no	no
B	no	yes
C	yes	no
D	yes	yes

5 Three equations involving organic compounds are shown.

$C_4H_{10} \rightarrow C_2H_4 + C_2H_6$

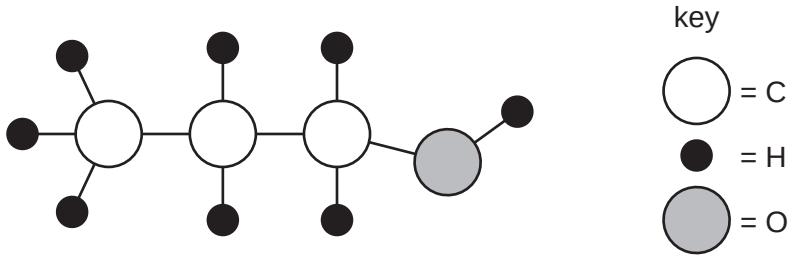
$C_2H_4 + H_2O \rightarrow C_2H_5OH$

$C_2H_5OH + 3O_2 \rightarrow 2CO_2 + 3H_2O$

How many different homologous series are shown in these equations?

A 1 **B** 2 **C** 3 **D** 4

6 The structure of a molecule of a compound is shown.

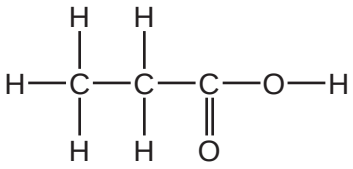


What is the formula of this compound?

A C_3H_7O **B** C_3H_8O **C** C_8H_3O **D** C_8HO_3

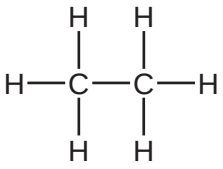
7 Which structure is correctly named?

A



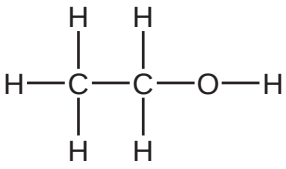
ethanoic acid

B



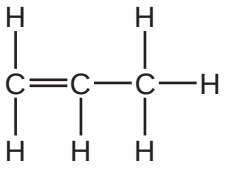
ethene

C



ethanol

D



propane

8 In which lists are the compounds in the same homologous series?

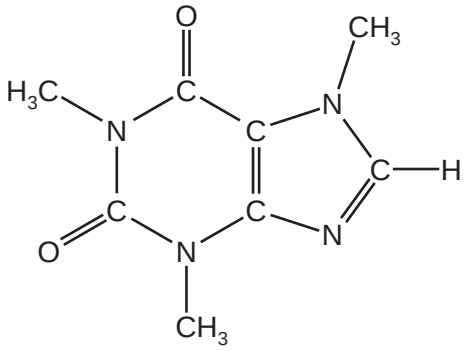
1 CH_4, C_2H_4, C_3H_8

2 CH_3OH, C_2H_5OH, C_3H_7OH

3 CH_3CO_2H, CH_3CH_2OH, $CH_3CH_2CH_2OH$

A 1 and 2 **B** 1 and 3 **C** 2 only **D** 3 only

9 Caffeine is a stimulant found in coffee.



caffeine

Which formula represents caffeine?

A $C_7H_{10}N_4O_2$ **B** $C_8H_{10}N_3O_2$ **C** $C_8H_{10}N_4O_2$ **D** $C_8H_{11}N_4O_2$

10 Which compound is a member of the alkene homologous series?

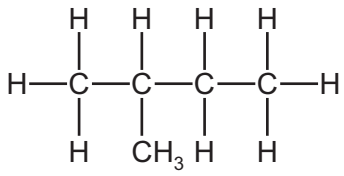
A C_2H_6 **B** C_4H_{10} **C** C_6H_{12} **D** C_8H_{18}

Paper 2

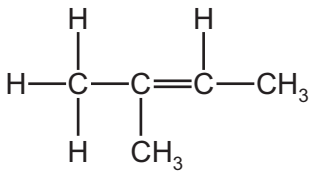
Questions are applicable for both core and extended candidates unless indicated in the question

11 Which molecules are structural isomers? **(extended only)**

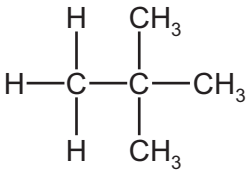
1



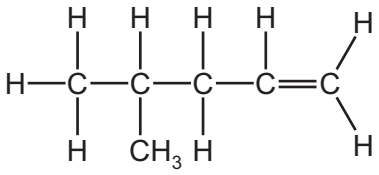
2



3



4



A 1 and 2 **B** 1 and 3 **C** 2 and 4 **D** 3 and 4

12 The structural formula of compound Q is given.

$$CH_3CH_2CH_2COOCH_2CH_2CH_3$$

What is compound Q? **(extended only)**

A butyl butanoate

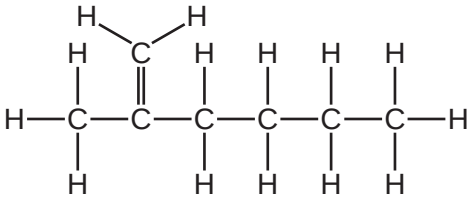
B butyl propanoate

C propyl butanoate

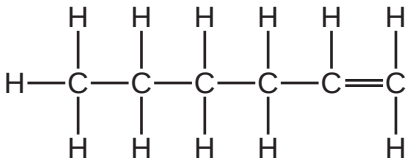
D propyl propanoate

13 The structures of two molecules, X and Y, are shown.

X



Y



Which row describes X and Y? **(extended only)**

	structural isomers	belong to same homologous series
A	no	no
B	no	yes
C	yes	no
D	yes	yes

14 Which statement defines structural isomers? **(extended only)**

A They are compounds with the same displayed formula but a different molecular formula.

B They are compounds with the same molecular and displayed formulae but a different structural formula.

C They are compounds with the same molecular formula but a different structural formula.

D They are compounds with the same structural formula but a different displayed formula.

15 Which statement about structural isomers is correct? **(extended only)**

A They have the same structure but different reactivity.

B They have the same general formula but a different number of carbon atoms in their molecules.

C They have the same structure but different relative molecular masses.

D They have different structures but the same numbers of each type of atom.

16 Which formula is the same in methanol, ethanol and propanol?

A empirical formula

B general formula

C molecular formula

D structural formula