40 Which compound has an addition reaction with chlorine?

A C_2H_4 **B** C_2H_6 **C** C_2H_5OH **D** CH_3CO_2H

s/04/qp1

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35 What is the structure of the product of the reaction between butene, $CH_3–CH_2–CH=CH_2$, and bromine, Br_2?

A $CH_2Br–CH_2–CH_2–CH_2Br$

B $CH_2Br–CH_2–CHBr–CH_3$

C $CH_3–CHBr–CH_2–CH_2Br$

D $CH_3–CH_2–CHBr–CH_2Br$

s/05/qp1

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36 A student investigated the reaction of different vegetable oils with hydrogen. 100 cm^3 of hydrogen was passed through 1 g samples of vegetable oils containing a suitable catalyst.

The volume of hydrogen remaining after each reaction was recorded.

vegetable oil	volume of hydrogen remaining / cm^3
P	100
Q	87
R	63
S	0

Which vegetable oils are unsaturated?

A P only

B Q and R only

C Q, R and S only

D S only

s/06/qp1

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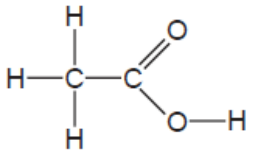
39 The structures of four organic compounds are shown.

1



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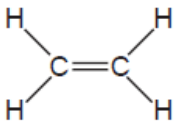

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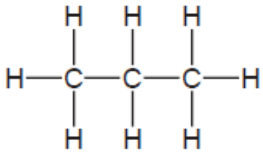

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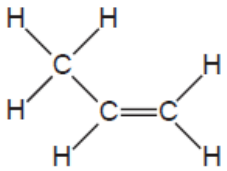

Which compounds decolourise bromine water?

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

s/06/qp1

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40 In the polymerisation of ethene to form poly(ethene), there is no change in

A boiling point.

B density.

C mass.

D molecular formula.

w/02/qp1

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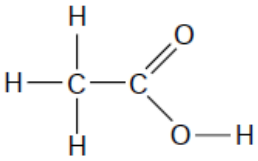
37 The structures of four organic compounds are shown.

1



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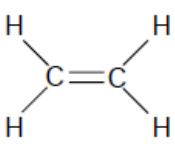

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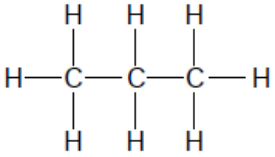

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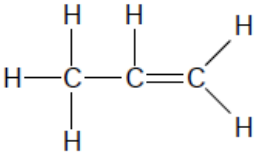

Which compounds decolourise bromine water?

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

w/02/qp1

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24 Which shows the correct catalyst for each industrial process?

	manufacture of sulphuric acid	manufacture of ammonia	manufacture of margarine
A	nickel	iron	vanadium(V) oxide
B	nickel	vanadium(V) oxide	iron
C	vanadium(V) oxide	iron	nickel
D	vanadium(V) oxide	nickel	iron

w/03/qp1

40 A vegetable oil is polyunsaturated.

Which statement about this vegetable oil is correct?

A It has double bonds between carbon and hydrogen atoms.

B It reacts with hydrogen to form a solid compound.

C It reacts with steam to form margarine.

D It turns aqueous bromine from colourless to brown.

w/04/qp1

39 The list shows reactions in which ethanol is either a reactant or a product.

1	combustion of ethanol
2	conversion of ethene to ethanol
3	fermentation of glucose
4	oxidation of ethanol to ethanoic acid

In which reactions is water also either a reactant or a product?

A 1, 3 and 4 only

B 2, 3 and 4 only

C 1, 2 and 4 only

D 3 only

w/04/qp1

22 Why is nickel used in the hydrogenation of alkenes?

A It increases the yield of products.

B It lowers the activation energy of the reaction.

C It makes the reaction more exothermic.

D It prevents a reverse reaction from occurring.

w/06/qp1

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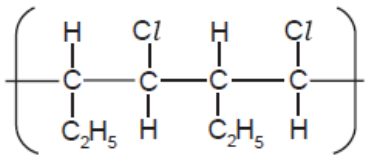
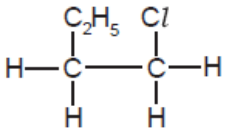
39 The structural formula of a polymer is shown below.

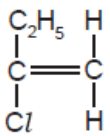


Which one of the following will form this polymer?

A



B



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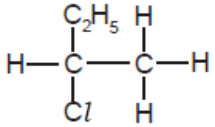

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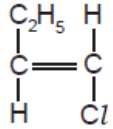

w/06/qp1

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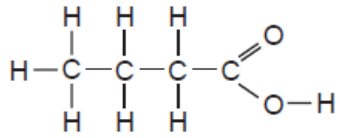
36 The results of tests on compound **Z** are shown.

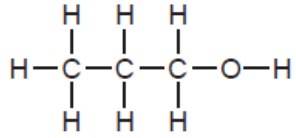
test	result
add bromine water	turns colourless
add aqueous sodium carbonate	carbon dioxide formed

What is compound **Z**?

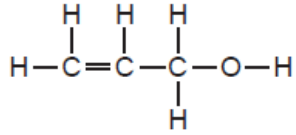
A



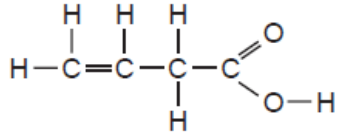
B



C



D



w/06/qp1

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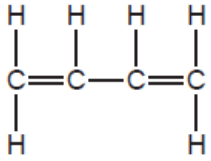
38 The diagram shows the structure of the compound 1,3-butadiene.



How many molecules of hydrogen are needed to saturate one molecule of 1,3-butadiene?

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

s/08/qp1

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21 Why is nickel used in the addition of hydrogen to alkenes?

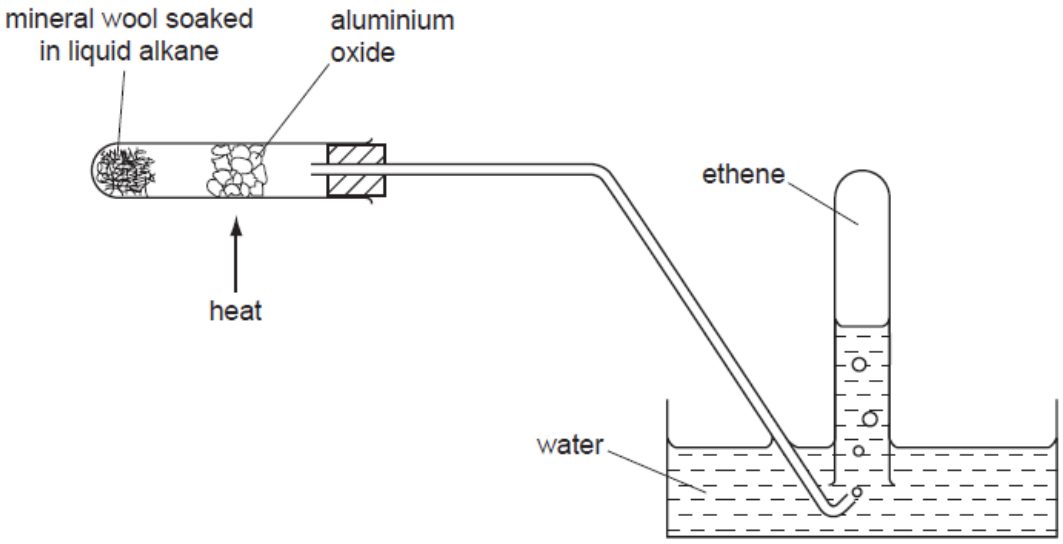
A It increases the yield of products.

B It lowers the activation energy of the reaction.

C It makes the reaction more exothermic.

D It prevents a reverse reaction from occurring.

36 The diagram shows the breakdown of an alkane to ethene.



The ethene is then tested with aqueous bromine.

Which information about ethene is correct?

	solubility of ethene gas	action on aqueous bromine
A	insoluble	decolourised
B	insoluble	no reaction
C	soluble	decolourised
D	soluble	no reaction

5070_s09_qp1

37 Which molecule does **not** undergo an addition reaction with alkenes?

A ammonia, NH_3

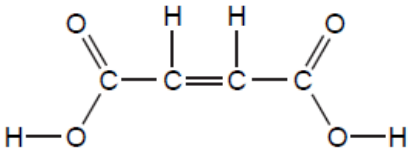
B bromine, Br_2

C hydrogen, H_2

D steam, H_2O

5070_w08_qp1

38 The structural formula of butenedioic acid is shown.



Which statement about butenedioic acid is **not** correct?

A It decolourises aqueous bromine.

B Its aqueous solution reacts with sodium carbonate.

C Its empirical formula is the same as its molecular formula.

D Its relative molecular mass is 116.

5070_w09_qp1

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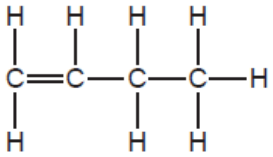
36 Substance X, molecular formula C_4H_8, does **not** react with hydrogen.

What is the structural formula of X?

A



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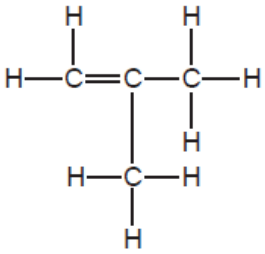

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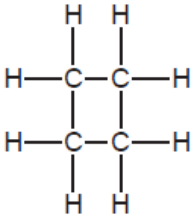
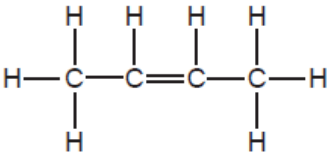


D



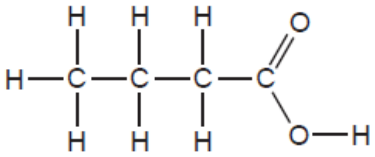
5070_w09_qp1

39 The results of tests on compound Z are shown.

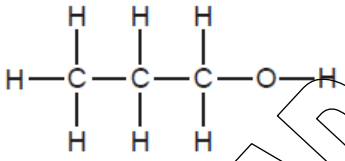
test	result
add bromine water	turns colourless
add aqueous sodium carbonate	carbon dioxide formed

What is compound Z?

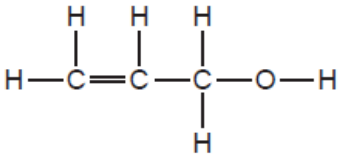
A



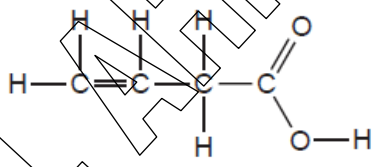
B



C



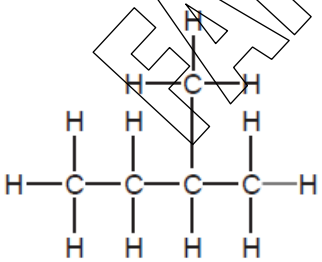
D



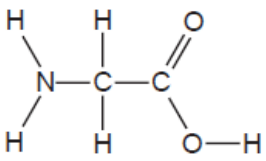
5070_w10_qp11

34 Which formula represents a compound likely to undergo addition polymerisation?

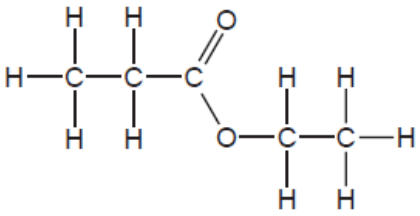
A



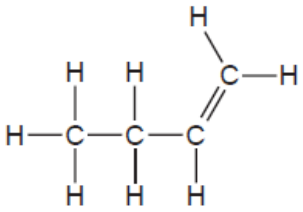
B



C



D



5070_w10_qp11

39 With which substance will ethene react to form more than one product?

A bromine

B hydrogen

C oxygen

D steam

5070_s11_qp11

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33 Compound X is a hydrocarbon. It reacts with steam to form an alcohol.

Which type of compound is X and what would be its effect on bromine water?

	type of compound	effect on bromine water
A	alkane	turns from brown to colourless
B	alkane	turns from colourless to brown
C	alkene	turns from brown to colourless
D	alkene	turns from colourless to brown

5070_s11_qp11
