14.6 Alcohols

01. 0620_s21_qp_21 Q: 37

What is an advantage of manufacturing ethanol by fermentation?

A The process is very fast.

B The ethanol requires no separation.

C The raw materials used are renewable.

D There are no other products formed.

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02. 0620_s21_qp_23 Q: 38

What is an advantage of the fermentation process for producing ethanol compared with the catalytic addition of steam to ethene?

A Fermentation requires less heat energy.

B Ethanol from fermentation needs to be distilled.

C Raw materials for fermentation are non-renewable.

D The fermentation process is carried out in batches rather than continuously.

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03. 0620_w21_qp_22 Q: 37

Ethanol is manufactured by fermentation of sugars or by catalytic hydration of ethene.

Which row states an advantage of each method?

	fermentation	hydration
A	produces purer ethanol	is a batch process
B	produces purer ethanol	is a continuous process
C	uses a renewable resource	is a batch process
D	uses a renewable resource	is a continuous process

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04. 0620_m20_qp_22 Q: 37

Which row describes the production of ethanol and its properties?

	can be made from glucose	can be made from ethene	is used as a fuel	is used as a solvent
A	✓	✓	✓	✓
B	✓	✗	✓	✓
C	✗	✓	✓	✗
D	✗	✓	✗	✓

key
✓ = yes
✗ = no

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05. 0620_s20_qp_21 Q: 35

Which row about the production of ethanol by fermentation is correct?

	raw materials	energy requirement	rate of reaction
A	non-renewable	high	slow
B	renewable	low	slow
C	non-renewable	low	fast
D	renewable	high	fast

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06. 0620_s20_qp_22 Q: 35

Ethanol is made on an industrial scale by the fermentation of sugars or by the reaction of ethene with steam in the presence of a suitable catalyst.

What is a **disadvantage** of making ethanol from ethene rather than by fermentation?

A A continuous production process is used.

B A non-renewable raw material is used.

C The product is very pure.

D The rate of reaction is very high.

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07. 0620_s20_qp_23 Q: 35

Ethanol is produced by:

1 the catalytic addition of steam to ethene

2 fermentation.

Which statement is correct?

A Both processes require similar amounts of energy.

B Both processes use a catalyst.

C Process 1 uses a renewable resource.

D Process 2 produces the purest ethanol.

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08. 0620_w20_qp_21 Q: 38

The flow chart shows the preparation of ethanol and some important chemistry of ethanol.

What are X, Y and Z?

	X	Y	Z
A	yeast	combustion	oxygen
B	glucose	combustion	steam
C	glucose	polymerisation	water
D	yeast	fermentation	glucose

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09. 0620_m19_qp_22 Q: 38

Ethanol is manufactured on a large scale by fermentation.

Which statement about fermentation is correct?

A It is a continuous process.

B A renewable raw material is used.

C It is a very fast reaction.

D The ethanol produced is pure.

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10. 0620_w19_qp_21 Q: 38

Ethanol is manufactured by the catalytic addition of steam to ethene and by fermentation.

Which statement describes an advantage of fermentation compared to the catalytic addition of steam to ethene?

A Fermentation is a more rapid reaction.

B Fermentation produces a purer product.

C Fermentation uses a higher temperature.

D Fermentation uses renewable resources.

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11. 0620_w19_qp_22 Q: 38

Ethanol is produced by fermentation or by the reaction of ethene with steam.

Which row is correct?

	by fermentation	from ethene
A	uses a temperature of 100 °C	uses a temperature of 350 °C
B	needs yeast as a catalyst	does not need a catalyst
C	very slow reaction	very fast reaction
D	high yield of ethanol	low yield of ethanol

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12. 0620_w19_qp_23 Q: 38

Ethanol is made by fermentation of sugars and by the catalytic addition of steam to ethene.

What are two advantages of making ethanol by the catalytic addition of steam to ethene rather than by fermentation of sugars?

A faster reaction and renewable raw materials

B purer product and faster reaction

C renewable raw materials and continuous process

D uses more energy and forms a purer product

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13. 0620_m18_qp_22 Q: 37

Three chemical reactions are shown.

1 catalytic addition of steam to ethene

2 combustion of ethanol

3 fermentation of glucose

In which of the reactions does the relative molecular mass of the carbon-containing compound decrease?

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

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14. 0620_m18_qp_22 Q: 38

How is ethanol produced by fermentation?

A using anaerobic conditions at 30 °C

B using anaerobic conditions at 450 °C

C using steam at 30 °C

D using steam at 450 °C

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15. 0620_s18_qp_21 Q: 38

Ethanol is produced by fermentation or from ethene.

What is a disadvantage of producing ethanol by fermentation?

A Distillation is needed to purify the ethanol produced.

B Fermentation uses glucose from plants.

C Fermentation is catalysed by enzymes in yeast.

D Fermentation occurs at a low temperature and pressure.

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16. 0620_s18_qp_22 Q: 38

Two processes used for the large-scale production of ethanol are shown.

process 1 A compound containing carbon, hydrogen and oxygen is used to produce ethanol.

process 2 A compound containing carbon and hydrogen only is used to produce ethanol.

Which statement is correct?

A Process 1 uses a renewable starting material.

B Process 1 is done at a very high temperature.

C Process 2 involves fermentation.

D Process 2 is done at room temperature.

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17. 0620_s18_qp_23 Q: 38

Which row describes an advantage and a disadvantage of making ethanol by fermentation?

	advantage	disadvantage
A	uses a renewable resource	occurs at a slow rate
B	needs a high temperature	produces impure ethanol as a product
C	produces pure ethanol as a product	needs a high temperature
D	occurs at a slow rate	uses a non-renewable resource

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18. 0620_w18_qp_21 Q: 37

Ethanol can be formed by:

1 fermentation

2 reaction between steam and ethene.

Which of these processes use a catalyst?

	1	2
A	✓	✓
B	✓	✗
C	✗	✓
D	✗	✗

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19. 0620_w18_qp_22 Q: 38

Ethanol is manufactured from ethene.

What is an advantage of this process?

A It is a continuous process.

B It has high labour costs.

C It needs high temperature and pressure.

D It uses non-renewable materials.

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20. 0620_w18_qp_23 Q: 38

Sugar can be fermented to produce ethanol.

Some of the stages in the process to produce and purify ethanol are listed.

1 Leave in a warm place.

2 Add yeast.

3 Fractionally distil the solution.

4 Dissolve the sugar in water.

5 Filter to remove the yeast.

6 Crush some sugar cane.

What is the correct order of these stages?

A $4 \rightarrow 6 \rightarrow 2 \rightarrow 1 \rightarrow 5 \rightarrow 3$

B $6 \rightarrow 4 \rightarrow 1 \rightarrow 2 \rightarrow 5 \rightarrow 3$

C $6 \rightarrow 4 \rightarrow 2 \rightarrow 1 \rightarrow 3 \rightarrow 5$

D $6 \rightarrow 4 \rightarrow 2 \rightarrow 1 \rightarrow 5 \rightarrow 3$

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21. 0620_m17_qp_22 Q: 37

Ethanol is produced from either ethene or sugar.

Which type of chemical reaction is used in each case?

	ethene → ethanol	sugar → ethanol
A	addition	fermentation
B	addition	fractional distillation
C	distillation	fermentation
D	distillation	fractional distillation

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22. 0620_s17_qp_21 Q: 38

Ethanol is manufactured by fermentation or by the catalytic addition of steam to ethene.

Which statement is correct?

A Fermentation uses a higher temperature than the catalytic addition of steam to ethene.

B Fermentation uses a non-renewable resource.

C The catalytic addition of steam to ethene produces purer ethanol than fermentation.

D The catalytic addition of steam to ethene uses a biological catalyst.

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23. 0620_s17_qp_22 Q: 38

Ethanol is manufactured by fermentation or by the catalytic addition of steam to ethene.

What is an advantage of ethanol manufacture by fermentation instead of by the catalytic addition of steam to ethene?

A Ethanol manufactured by fermentation is purified by distillation.

B Ethanol manufacture by fermentation produces purer ethanol.

C Ethanol manufacture by fermentation uses large areas of land.

D Ethanol manufacture by fermentation uses renewable resources.

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24. 0620_s17_qp_23 Q: 38

Ethanol can be produced by fermentation or by the catalytic addition of steam to ethene.

Which row shows an advantage and a disadvantage for each process?

	fermentation		catalytic addition of steam to ethene	
	advantage	disadvantage	advantage	disadvantage
A	batch process	slow reaction	continuous process	fast reaction
B	fast reaction	continuous process	pure ethanol formed	renewable raw material
C	renewable raw material	batch process	pure ethanol formed	slow reaction
D	renewable raw material	impure ethanol formed	fast reaction	finite raw material

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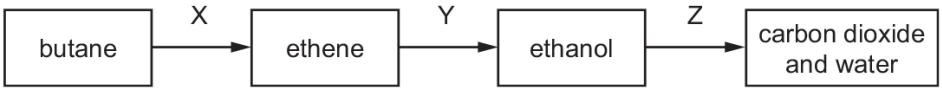
25. 0620_w17_qp_21 Q: 38

The diagram shows a reaction sequence.



Which row names the processes X, Y and Z?

	X	Y	Z
A	cracking	fermentation	respiration
B	cracking	hydration	combustion
C	distillation	fermentation	respiration
D	distillation	hydration	combustion

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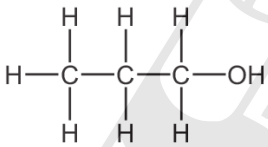
26. 0620_w17_qp_23 Q: 35

The structure of compound R is shown.



What is R?

A propane

B propanoic acid

C propanol

D propene

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27. 0620_s16_qp_21 Q: 36

Which of the compounds shown are in the same homologous series?

1 CH_3OH

2 CH_3CH_2OH

3 CH_3COOH

4 $CH_3CH_2CH_2OH$

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

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28. 0620_s16_qp_21 Q: 38

What is an advantage of producing ethanol by fermentation of sugar compared to the catalytic addition of steam to ethene?

A The alcohol produced is purer.

B The process is faster.

C The process uses high temperature.

D The process uses renewable raw materials.

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29. 0620_w16_qp_21 Q: 37

Substance Z has the following characteristics.

1 It burns in an excess of oxygen to form carbon dioxide and water.

2 It is oxidised by air to form a liquid smelling of vinegar.

3 It reacts with carboxylic acids to form esters.

What is substance Z?

A ethane

B ethanoic acid

C ethanol

D ethyl ethanoate

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30. 0620_w16_qp_21 Q: 38

Ethanol is manufactured by the catalytic addition of steam to ethene and by fermentation.

Which row shows an advantage and a disadvantage of using the catalytic addition of steam to ethene compared to fermentation?

	advantage	disadvantage
A	fast	the product is impure
B	fast	uses non-renewable materials
C	the product is pure	slow
D	uses renewable materials	slow

SN	Paper	Q. No.	Answer
01	0620_s21_qp_21	37	C
02	0620_s21_qp_23	38	A
03	0620_w21_qp_22	37	D
04	0620_m20_qp_22	37	A
05	0620_s20_qp_21	35	B
06	0620_s20_qp_22	35	B
07	0620_s20_qp_23	35	B
08	0620_w20_qp_21	38	B
09	0620_m19_qp_22	38	B
10	0620_w19_qp_21	38	D
11	0620_w19_qp_22	38	C
12	0620_w19_qp_23	38	B
13	0620_m18_qp_22	37	C
14	0620_m18_qp_22	38	A
15	0620_s18_qp_21	38	A
16	0620_s18_qp_22	38	A
17	0620_s18_qp_23	38	A
18	0620_w18_qp_21	37	A
19	0620_w18_qp_22	38	A
20	0620_w18_qp_23	38	D
21	0620_m17_qp_22	37	A
22	0620_s17_qp_21	38	C
23	0620_s17_qp_22	38	D
24	0620_s17_qp_23	38	D
25	0620_w17_qp_21	38	B
26	0620_w17_qp_23	35	C
27	0620_s16_qp_21	36	B
28	0620_s16_qp_21	38	D
29	0620_w16_qp_21	37	C
30	0620_w16_qp_21	38	B