01. 0610_w16_qp_23 Q: 24

What is the equation for aerobic respiration in plants?

A $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$

B $C_6H_{12}O_6 \rightarrow 2C_3H_6O_3$

C $6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$

D $C_6H_{12}O_6 \rightarrow 2C_2H_5OH + 2CO_2$

12.3 Anaerobic respiration

02. 0610_m22_qp_22 Q: 22

Yeast is placed inside a container full of a glucose solution with no air.

Which word equation summarises the process that takes place inside the container?

A glucose → alcohol + carbon dioxide

B glucose → lactic acid

C glucose + oxygen → carbon dioxide + water

D glucose + oxygen → alcohol

---

03. 0610_m21_qp_22 Q: 23

After running a fast race a student had pains in their leg muscles.

The pain was caused by the build-up of a product of anaerobic respiration.

Which product caused the pain?

A carbon dioxide

B ethanol

C lactic acid

D water

---

04. 0610_w21_qp_22 Q: 23

Which statement about lactic acid is correct?

A Lactic acid is a product of anaerobic respiration in yeast.

B Lactic acid build-up in tissues can lead to an oxygen debt.

C Lactic acid is produced from sucrose during anaerobic respiration.

D Lactic acid is transported from the liver to the muscles after exercise.

---

05. 0610_w21_qp_23 Q: 23

What is the equation for anaerobic respiration in yeast?

A $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$

B $C_6H_{12}O_6 \rightarrow 2C_3H_6O_3$

C $C_6H_{12}O_6 \rightarrow 2C_2H_5OH + 2CO_2$

D $6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$

---

06. 0610_p20_qp_20 Q: 17

The table shows some of the features of respiration.

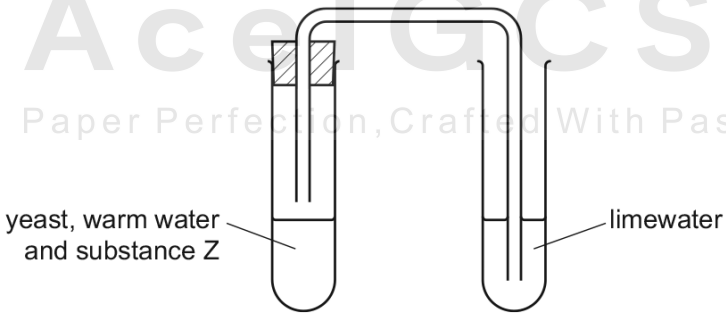
Which row is correct for anaerobic respiration?

	amount of energy released per glucose molecule	chemical reaction	releases carbon dioxide
A	high	always the same	sometimes
B	low	different in different organisms	sometimes
C	high	different in different organisms	always
D	low	always the same	always

---

07. 0610_p20_qp_20 Q: 18

The diagram shows some apparatus used to investigate respiration. Yeast, warm water and substance Z were put into a test-tube. After a while, the limewater began to go cloudy.



What is substance Z?

A alcohol

B glucose

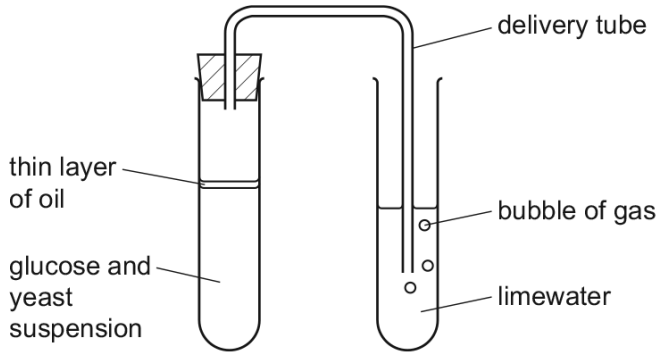
C nitrogen

D oxygen

---

08. 0610_s20_qp_21 Q: 21

The diagram shows an experiment to investigate the respiration of yeast. Oil prevents oxygen entering the glucose and yeast suspension.



If **no** oxygen is present in the glucose and yeast suspension, what will occur?

A Ethanol will be produced and the limewater will stay clear.

B Ethanol will be produced and the limewater will go cloudy.

C Lactic acid will be produced and the limewater will stay clear.

D Lactic acid will be produced and the limewater will go cloudy.

---

09. 0610_s20_qp_22 Q: 22

The formula C_2H_5OH represents a chemical produced during anaerobic respiration.

What is this chemical?

A alcohol

B glucose

C glycogen

D lactic acid

---

10. 0610_w20_qp_22 Q: 21

What is produced during anaerobic respiration in muscles?

A carbon dioxide

B ethanol

C lactic acid

D water

---

11. 0610_w20_qp_23 Q: 21

What is produced by anaerobic respiration in yeast?

A alcohol, carbon dioxide and water

B alcohol and carbon dioxide only

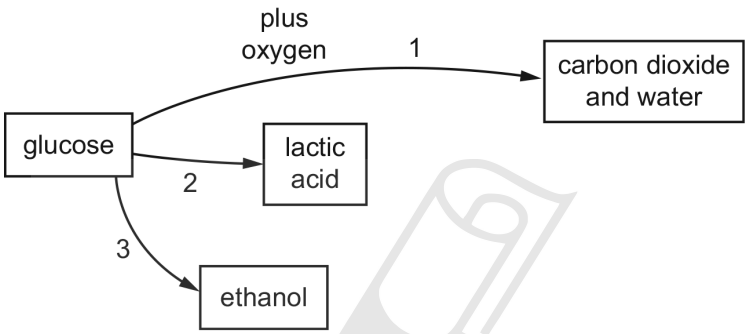
C carbon dioxide and lactic acid

D lactic acid only

---

12. 0610_m19_qp_22 Q: 22

The flow diagram summarises three different ways that glucose can be broken down to release energy.



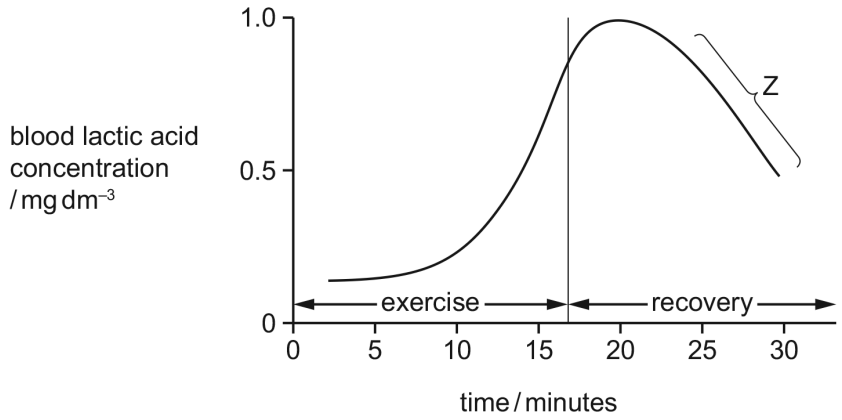
Which routes involve the action of enzymes?

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

---

13. 0610_m19_qp_22 Q: 23

The graph shows the lactic acid concentration in blood during and after exercise.



Which process accounts for the shape of the graph at Z?

A aerobic respiration of lactic acid in the kidney

B aerobic respiration of lactic acid in the liver

C anaerobic respiration of lactic acid in the kidney

D anaerobic respiration of lactic acid in the liver

---

14. 0610_s19_qp_21 Q: 23

Which statement about both aerobic and anaerobic respiration is correct?

A They break down $C_6H_{12}O_6$.

B They produce an oxygen debt.

C They use CO_2.

D They use O_2.

---

15. 0610_w19_qp_21 Q: 21

Lactic acid builds up in the muscles during vigorous exercise.

During recovery, how is this lactic acid removed?

A aerobic respiration of lactic acid in the liver

B anaerobic respiration of lactic acid in the muscles

C excretion of lactic acid by the lungs

D removal of lactic acid by the alimentary canal

---

16. 0610_s18_qp_21 Q: 21

Yeast is able to respire both aerobically and anaerobically.

Which statement describes the waste products of yeast respiration?

A Aerobic respiration produces alcohol as one of its waste products.

B Aerobic respiration produces three times as much carbon dioxide as anaerobic respiration from one molecule of glucose.

C Anaerobic respiration and aerobic respiration both produce the same amount of carbon dioxide from one molecule of glucose.

D Anaerobic respiration produces three times as much carbon dioxide as aerobic respiration from one molecule of glucose.

---

17. 0610_w18_qp_21 Q: 21

What is produced by anaerobic respiration in mammals?

A alcohol + carbon dioxide

B alcohol + oxygen

C lactic acid + carbon dioxide

D lactic acid

---

18. 0610_m17_qp_22 Q: 20

What are the products of anaerobic respiration in muscles?

A ethanol and carbon dioxide

B ethanol only

C lactic acid and carbon dioxide

D lactic acid only

---

19. 0610_s17_qp_21 Q: 21

Which is the equation for anaerobic respiration in yeast?

A $C_6H_{12}O_6 \rightarrow 2C_2H_5OH + 2CO_2$

B $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$

C $2CO_2 + 2C_2H_5OH \rightarrow C_6H_{12}O_6$

D $6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$

---

20. 0610_s17_qp_23 Q: 21

Which is **not** involved in removing the oxygen debt after a human has been exercising?

A aerobic respiration of alcohol in the liver

B aerobic respiration of lactic acid in the liver

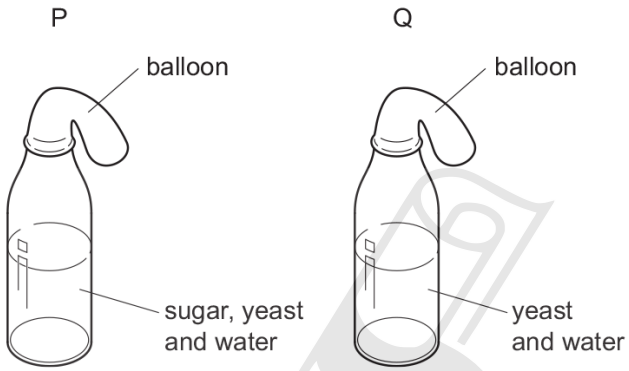
C continuation of deeper breathing

D continuation of faster heart rate

---

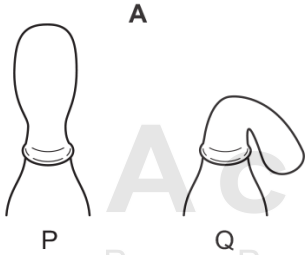
21. 0610_w17_qp_21 Q: 21

In an experiment to investigate anaerobic respiration, two bottles are set up in a warm room, as shown.

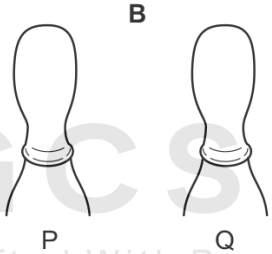


What would happen to each balloon after one day?

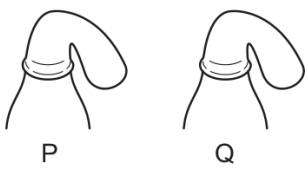
A



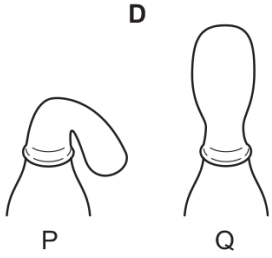
B



C



D



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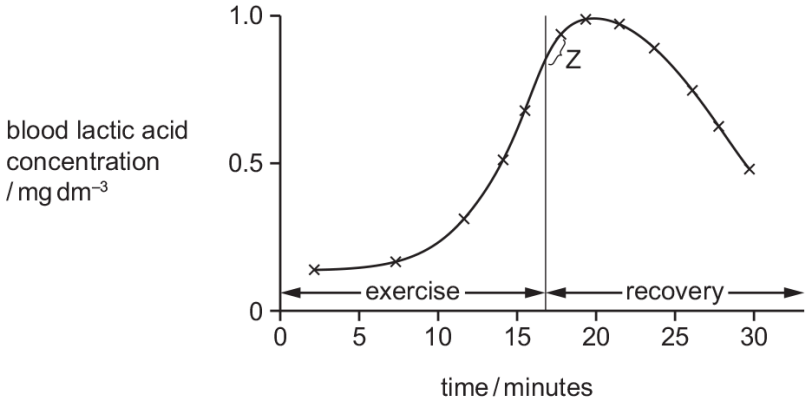
22. 0610_w17_qp_21 Q: 22

The graph shows the lactic acid concentration in blood during and after exercise.



The continuation of which process accounts for the shape of the graph at Z?

A deep breathing

B high heart rate

C high rate of breathing

D movement of lactic acid from the muscles

---

23. 0610_w17_qp_22 Q: 22

Vigorous exercise can cause an oxygen debt.

Which process removes the oxygen debt?

A aerobic respiration of lactic acid in the liver

B a decrease in breathing rate

C a decrease in heart rate

D an increase in blood supply to the skin

---

24. 0610_p16_qp_20 Q: 17

The table shows some of the features of respiration.

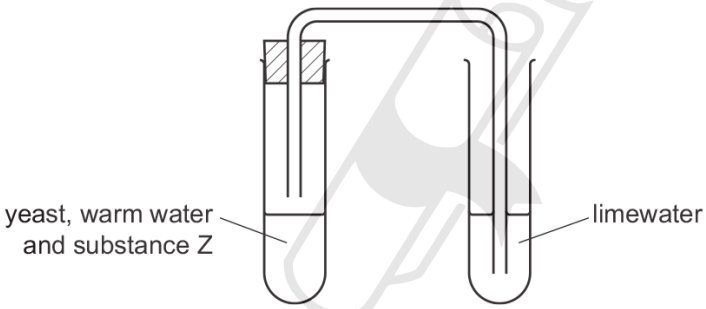
Which row is correct for anaerobic respiration?

	amount of energy released per glucose molecule	chemical reaction	releases carbon dioxide
A	high	always the same	sometimes
B	low	different in different organisms	sometimes
C	high	different in different organisms	always
D	low	always the same	always

---

25. 0610_p16_qp_20 Q: 18

The diagram shows some apparatus used to investigate respiration. Yeast, warm water and substance Z were put into a test-tube. After a while, the limewater began to go cloudy.



What is substance Z?

A alcohol

B glucose

C nitrogen

D oxygen

---

26. 0610_p16_qp_20 Q: 19

What happens during the process of breathing out?

	external intercostal muscles contract	pressure in the lungs increases	diaphragm contracts	volume of thorax increases
A	yes	yes	no	yes
B	yes	no	yes	yes
C	no	yes	no	no
D	no	no	yes	no

---

27. 0610_s16_qp_22 Q: 21

Lactic acid builds up in the muscles during vigorous exercise.

During recovery, how is this lactic acid removed?

A aerobic respiration of lactic acid in the liver

B anaerobic respiration of lactic acid in the muscles

C excretion of lactic acid by the kidneys

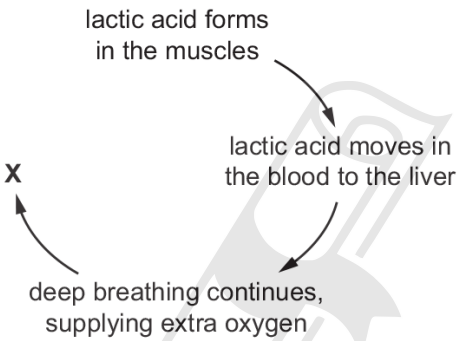
D removal of lactic acid by the alimentary canal

---

28. 0610_w16_qp_21 Q: 23

After a race, athletes experience oxygen debt.

The diagram shows how the oxygen debt is removed.



What happens at **X**?

A aerobic respiration of glucose

B aerobic respiration of lactic acid

C anaerobic respiration of glucose

D anaerobic respiration of lactic acid

SN	Paper	Q. No.	Answer
01	0610_w16_qp_23	24	A
02	0610_m22_qp_22	22	A
03	0610_m21_qp_22	23	C
04	0610_w21_qp_22	23	B
05	0610_w21_qp_23	23	C
06	0610_p20_qp_20	17	B
07	0610_p20_qp_20	18	B
08	0610_s20_qp_21	21	B
09	0610_s20_qp_22	22	A
10	0610_w20_qp_22	21	C
11	0610_w20_qp_23	21	B
12	0610_m19_qp_22	22	D
13	0610_m19_qp_22	23	B
14	0610_s19_qp_21	23	A
15	0610_w19_qp_21	21	A
16	0610_s18_qp_21	21	B
17	0610_w18_qp_21	21	D
18	0610_m17_qp_22	20	D
19	0610_s17_qp_21	21	A
20	0610_s17_qp_23	21	A
21	0610_w17_qp_21	21	A
22	0610_w17_qp_21	22	D
23	0610_w17_qp_22	22	A
24	0610_p16_qp_20	17	B
25	0610_p16_qp_20	18	B
26	0610_p16_qp_20	19	C
27	0610_s16_qp_22	21	A
28	0610_w16_qp_21	23	B