Respiration – 2023 November IGCSE 0610

1. Nov/2023 /Paper_ 0610/11/No.23

Three statements about anaerobic respiration are listed.

1 In humans, the product is lactic acid.

2 In yeast, the product is lactic acid.

3 It releases more energy per glucose molecule than aerobic respiration.

Which statements are correct?

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

2. Nov/2023 /Paper_ 0610/13/No.23

Which statement about anaerobic respiration is correct?

A Anaerobic respiration requires oxygen and releases less energy per glucose molecule than aerobic respiration.

B Anaerobic respiration requires oxygen and releases more energy per glucose molecule than aerobic respiration.

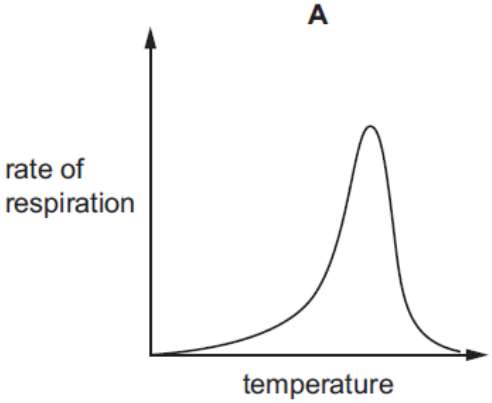
C Anaerobic respiration does **not** require oxygen and releases less energy per glucose molecule than aerobic respiration.

D Anaerobic respiration does **not** require oxygen and releases more energy per glucose molecule than aerobic respiration.

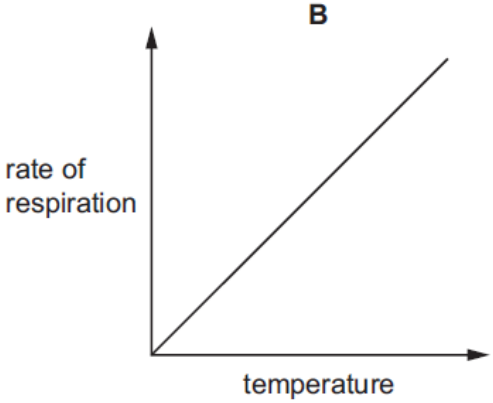
3. Nov/2023 /Paper_ 0610/13/No.31

Which graph shows the effect of temperature on the rate of respiration in yeast?

A



B



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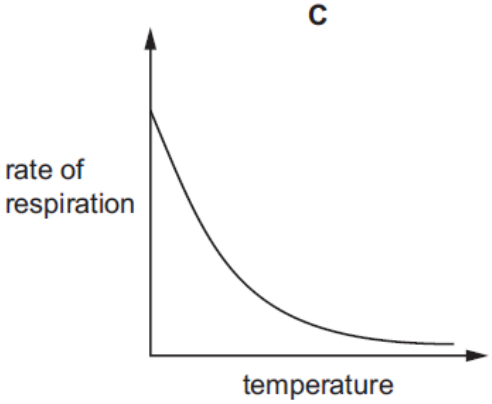

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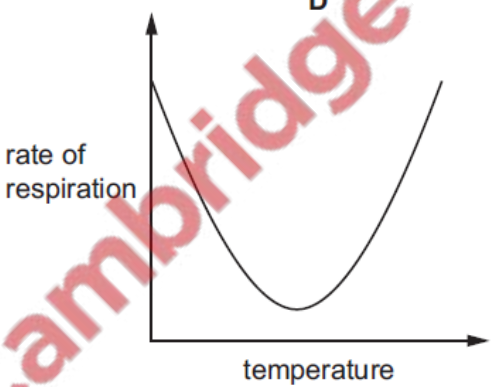

4. Nov/2023 /Paper_ 0610/21/No.23

Three statements about anaerobic respiration are listed.

1 In humans, the product is lactic acid.

2 In yeast, the product is lactic acid.

3 It releases more energy per glucose molecule than aerobic respiration.

Which statements are correct?

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

5. Nov/2023 /Paper_ 0610/21/No.24

What is the balanced chemical equation for a type of respiration that occurs in yeast?

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

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

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

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

6. Nov/2023 /Paper_ 0610/22/No.10

During exercise, receptors detect a change in the blood and cause the breathing rate to increase.

Which change do the receptors detect and where are they found in the body?

	change detected in the blood	location of receptors
A	carbon dioxide increases	brain
B	carbon dioxide increases	lung
C	carbon dioxide decreases	brain
D	carbon dioxide decreases	lung

7. Nov/2023 /Paper_ 0610/22/No.23

Yeast cells can convert glucose into alcohol and carbon dioxide.

Which statement about this process is correct?

A The alcohol produced can be used to make bread rise.

B The carbon dioxide produced can be burnt as a biofuel.

C The yeast cells are using oxygen for this process.

D The yeast cells are carrying out anaerobic respiration.

8. Nov/2023 /Paper_ 0610/22/No.24

What is the correct balanced equation for one type of respiration?

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

B $2C_2H_5OH \rightarrow C_6H_{12}O_6 + 2H_2O$

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

D $C_6H_{12}O_6 \rightarrow 2C_2H_5OH + 2H_2O$

9. Nov/2023 /Paper_ 0610/23/No.23

Which statement about anaerobic respiration is correct?

A Anaerobic respiration requires oxygen and releases less energy per glucose molecule than aerobic respiration.

B Anaerobic respiration requires oxygen and releases more energy per glucose molecule than aerobic respiration.

C Anaerobic respiration does **not** require oxygen and releases less energy per glucose molecule than aerobic respiration.

D Anaerobic respiration does **not** require oxygen and releases more energy per glucose molecule than aerobic respiration.

10. Nov/2023 /Paper_ 0610/23/No.24

During exercise an oxygen debt may occur in muscles.

What is the cause of this oxygen debt?

A Aerobic respiration causes a decrease in lactic acid.

B Aerobic respiration causes an increase in lactic acid.

C Anaerobic respiration causes a decrease in lactic acid.

D Anaerobic respiration causes an increase in lactic acid.

(a) Fig. 6.1 is a diagram showing how glucose is used by different organisms.

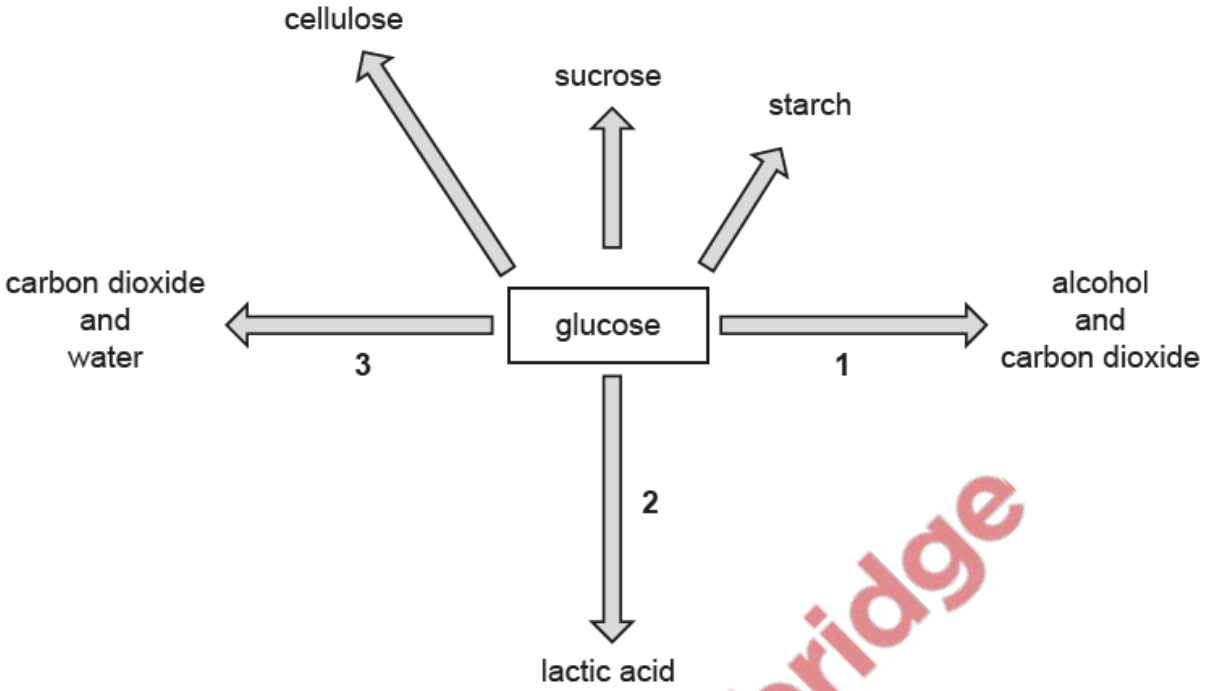

Fig. 6.1

(i) State the number or numbers from Fig. 6.1 that identify the processes that:

- release the most energy per glucose molecule .....
- take place in yeast cells. .....

[2]

(ii) State the balanced chemical equation for anaerobic respiration in a yeast cell.

..... [2]

(iii) State the names of **two** enzymes that are needed to break down starch into glucose in humans.

1 .....

2 .....

[2]

(iv) State the main use of the molecule cellulose in a plant.

..... [1]

(v) Sucrose and amino acids are transported around a plant.

State the name of:

- the process by which sucrose is transported around a plant
- the tissue that transports sucrose and amino acids around a plant
- the mineral ion that is used to make amino acids.

process .....

tissue .....

mineral ion .....

[3]

(b) In humans, the build-up of lactic acid creates an oxygen debt.

(i) State the body tissue that produces the most lactic acid during vigorous exercise.

..... [1]

(ii) The oxygen debt needs to be removed after exercise.

State how the breathing **and** circulatory systems act to remove the oxygen debt.

.....

.....

.....

.....

..... [2]

(iii) State the name of the organ which breaks down lactic acid.

..... [1]

[Total: 14]