12. Respiration

12.1 Respiration

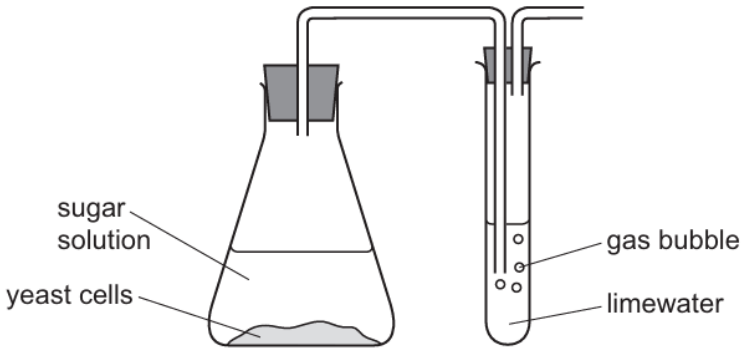
Paper 1 and 2

Question Paper

Paper 1

Questions are applicable for both core and extended candidates

1 The diagram shows the activity of some yeast cells in a sugar solution.



Which statement explains what happens to the limewater?

A The limewater changes from colourless to cloudy due to the presence of carbon dioxide.

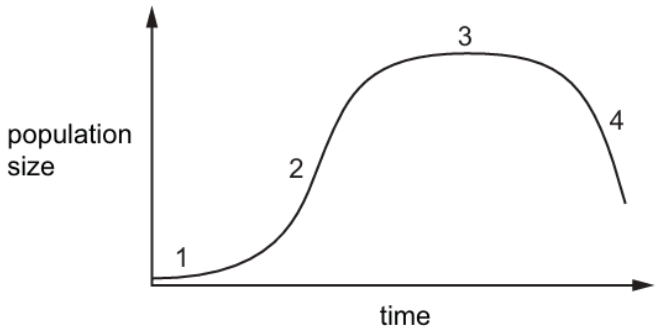
B The limewater changes from colourless to cloudy due to the presence of oxygen.

C The limewater changes from cloudy to colourless due to the presence of carbon dioxide.

D The limewater changes from cloudy to colourless due to the presence of oxygen.

2 A few yeast cells were placed in a container of nutrient solution.

The graph shows how their population size changed over time.



Which row shows when the reproduction rate was greater than the death rate for the numbered phases on the graph?

	reproduction rate greater than death rate			
	1	2	3	4
A	✓	✓	✓	✗
B	✓	✓	✗	✗
C	✓	✗	✗	✗
D	✗	✓	✓	✓

key
✓ = yes
✗ = no

3 Which row shows processes that all use energy from respiration?

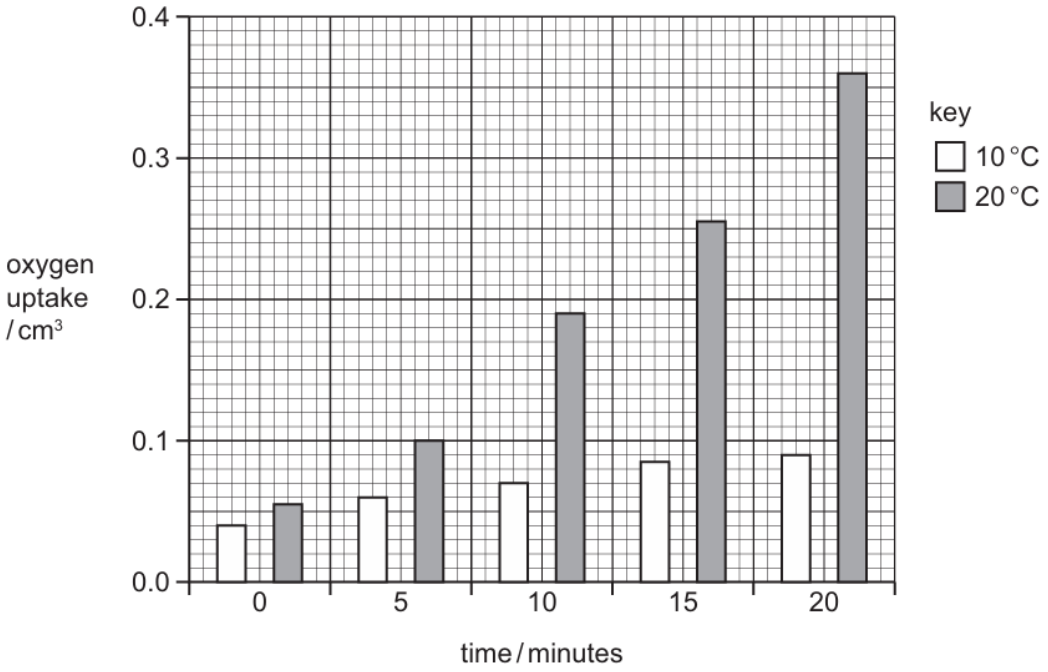
	diffusion	cell division	osmosis	muscle contraction	passage of nerve impulses	active transport
A	✗	✓	✓	✓	✓	✓
B	✓	✗	✓	✗	✗	✗
C	✓	✗	✗	✓	✗	✗
D	✗	✓	✗	✓	✓	✓

key

✓ = uses energy from respiration

✗ = does not use energy from respiration

4 The diagram shows the oxygen uptake by germinating seeds at two different temperatures.



At which time is the oxygen uptake at 20 °C four times greater than at 10 °C?

A 5 minutes

B 10 minutes

C 15 minutes

D 20 minutes

5 The list shows some processes that take place in a human body.

1 production of new red blood cells

2 transmission of nerve impulses from the eyes to the brain

3 diffusion of gases into and out of the lungs

Which processes use energy released by respiration?

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

6 What is the link between muscle contraction, protein synthesis and the maintenance of a constant body temperature?

A They are controlled by hormones.

B They are examples of homeostasis.

C They require energy.

D They require carbon dioxide.

7 The list shows some processes that happen in the human body.

1 water enters cells by osmosis

2 muscles contract

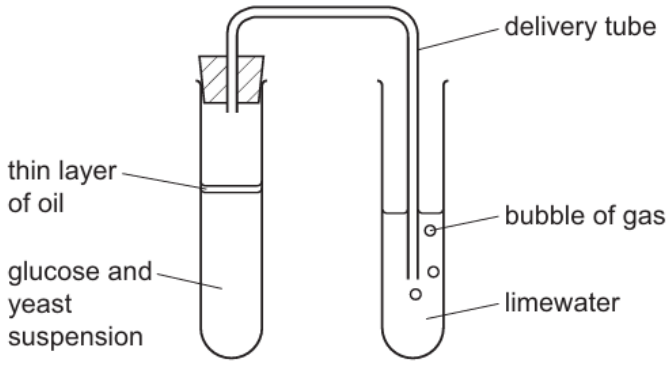
3 impulses travel along neurones

4 oxygen diffuses into cells

Which of these require energy released by respiration?

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

8 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.

9 Mammals maintain a constant body temperature.

What process must occur continuously to maintain a constant body temperature?

A excretion

B respiration

C shivering

D sweating

10 When is respiration carried out by green plants?

A at all times

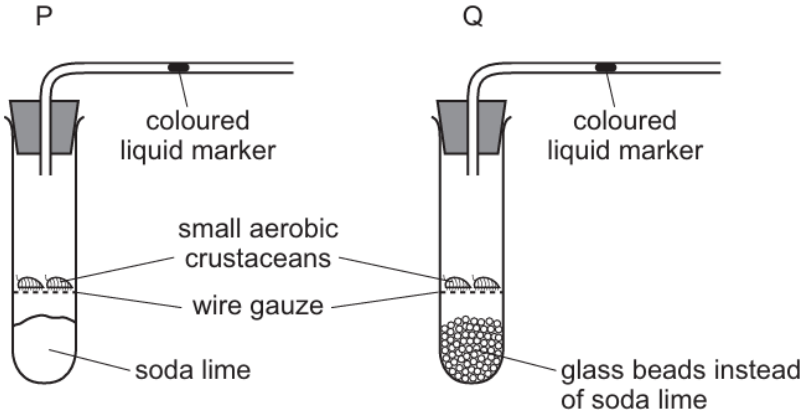
B at dusk and dawn only

C during the night only

D never

11 The diagram shows two experiments investigating gas exchange in small aerobic crustaceans.

Soda lime absorbs carbon dioxide.



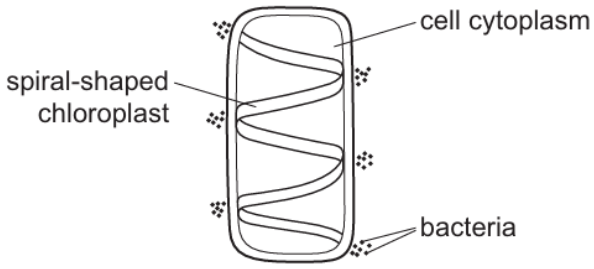
Which way does the liquid marker move?

	P	Q
A	left	right
B	left	stays still
C	right	left
D	right	stays still

Paper 2

Questions are applicable for both core and extended candidates

12 The diagram shows a cell with groups of bacteria around its edge.



The bacteria have moved to areas of high oxygen concentration.

Which process in the cell causes the bacteria to form these groups?

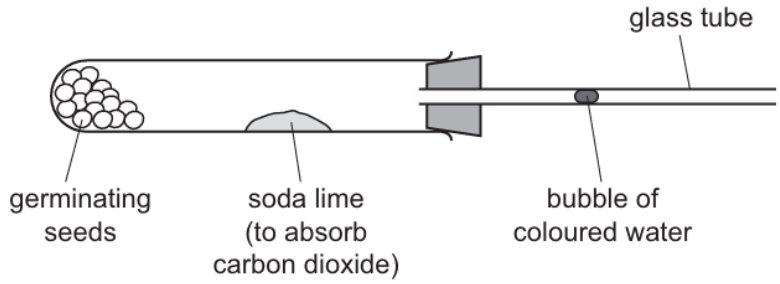
A digestion

B photosynthesis

C reproduction

D respiration

13 The diagram shows the apparatus used to measure the rate of respiration in germinating seeds. As the seeds respire, the bubble of coloured water moves along the glass tube.



The temperature is increased from 20 °C to 40 °C.

What happens to the movement of the bubble as the temperature increases?

A The bubble moves more quickly towards the seeds at 40 °C than at 20 °C.

B The bubble moves more quickly away from the seeds at 40 °C than at 20 °C.

C The bubble moves more quickly towards the seeds at 20 °C than at 40 °C.

D The bubble moves more quickly away from the seeds at 20 °C than at 40 °C.

14 The list shows some processes that take place in a human body.

1 production of new red blood cells

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Which processes use energy released by respiration?

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15 The list shows some processes that happen in the human body.

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