Movement into and out of cells – 2022 November IGCSE 0610 Biology

1. Nov/2022/Paper_11/No.8

Potato cylinders were put into different concentrations of sucrose solution for the same amount of time. The masses of the potato cylinders were measured before and after being immersed in the solutions.

The results are recorded in the table.

Which potato cylinder was put into the solution with the highest sucrose concentration?

	mass before immersion / g	mass after immersion / g	percentage change in mass
A	1.95	1.92	–1.5
B	2.05	1.95	–4.9
C	2.10	2.13	+1.4
D	2.25	2.20	–2.2

2. Nov/2022/Paper_12/No.8

Which row shows features of osmosis in cells?

	requires a cell membrane	requires a cell wall	water can move into the cell	water can move out of the cell
A	✓	✓	✓	✓
B	✓	✗	✓	✓
C	✓	✓	✗	✓
D	✗	✓	✓	✗

key
✓ = yes
✗ = no

3. Nov/2022/Paper_12/No.23

Which process could continue without energy from respiration?

A active transport

B growth

C osmosis

D protein synthesis

4. Nov/2022/Paper_13/No.8

Which row describes active transport?

	direction of movement	particles move through a cell membrane	energy required
A	from a region of higher concentration to a region of lower concentration	yes	no
B	from a region of higher concentration to a region of lower concentration	no	no
C	from a region of lower concentration to a region of higher concentration	no	yes
D	from a region of lower concentration to a region of higher concentration	yes	yes

5. Nov/2022/Paper_13/No.7

Which statement is about osmosis?

A movement of water through a partially permeable membrane

B movement of sodium ions from a high concentration to a low concentration

C movement of sodium ions from a low concentration to a high concentration

D requires energy from respiration

6. Nov/2022/Paper_21/No.5

Some examples of substances moving across membranes are listed.

1 glucose molecules into the epithelium that lines the small intestine

2 nitrate ions from a dilute solution in soil into a more concentrated solution in root hair cells

3 water molecules from mesophyll cells into the air spaces of a leaf

For which examples must oxygen be present?

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

7. Nov/2022/Paper_22/No.5

Some examples of substances moving across membranes are listed.

1 glucose molecules into the epithelium that lines the small intestine

2 nitrate ions from a dilute solution in soil into a more concentrated solution in root hair cells

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For which examples must oxygen be present?

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8. Nov/2022/Paper_22/No.6

Plant tissue is placed in a solution.

What would cause plasmolysis of the plant cells?

1 the external solution having a higher water potential than the plant cells

2 the external solution having a lower water potential than the plant cells

3 water moving out of the plant cells

4 water moving into the plant cells

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

9. Nov/2022/Paper_23/No.5

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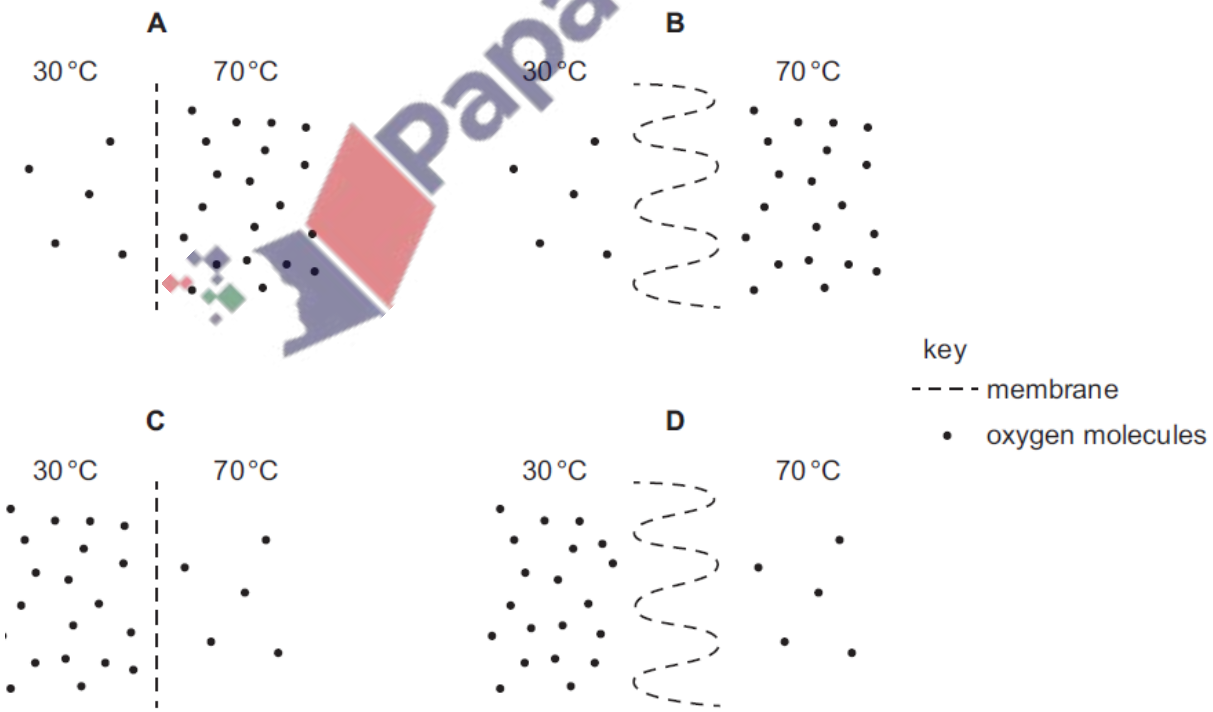
For which examples must oxygen be present?

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

10. Nov/2022/Paper_23/No.6

In which diagram would most oxygen molecules diffuse across the membrane per minute?



11. Nov/2022/Paper_32/No.2(b)

(b) Table 2.2 shows some of the features of diffusion, osmosis and active transport.

Place ticks (✓) in the boxes to show the correct features of each process.

Table 2.2

	requires energy from respiration	takes place against a concentration gradient	always involves the movement of water	substances can cross the cell membrane
diffusion				
osmosis				
active transport				

[4]