Movement into and out of cells

3.1 Diffusion

Paper 1 and 2

Question Paper

Paper 1

Questions are applicable for both core and extended candidates

1 A frog is an animal. The skin of a frog is permeable to oxygen and carbon dioxide.

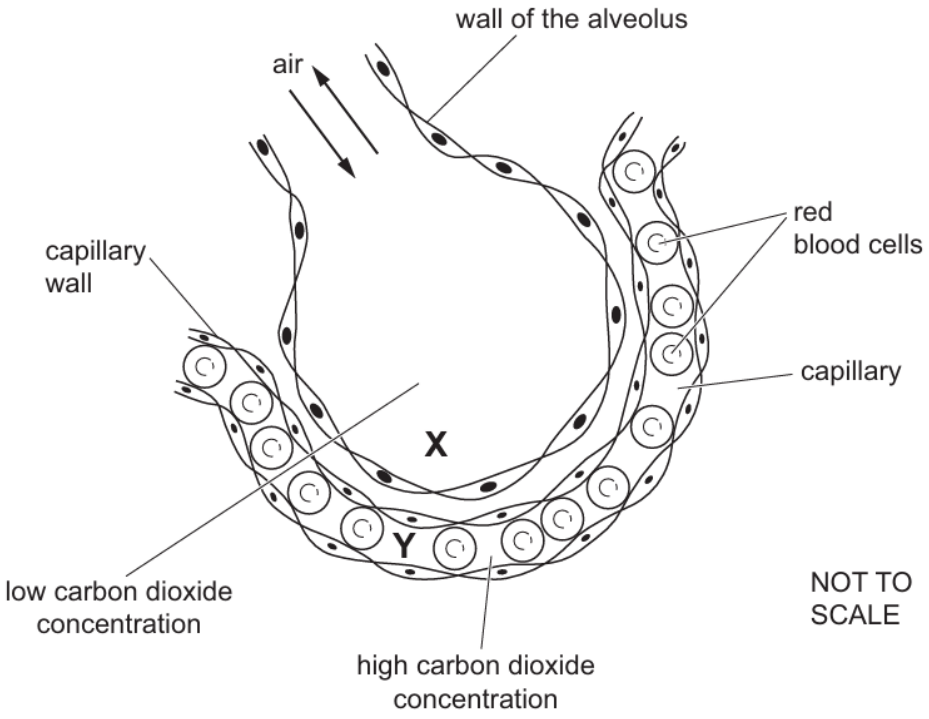
Which directions will have a net diffusion of oxygen and carbon dioxide when a frog swims in pond water?

	from the frog into the water	from the water into the frog
A	carbon dioxide	oxygen
B	carbon dioxide and oxygen	no movement
C	oxygen	carbon dioxide
D	no movement	carbon dioxide and oxygen

2 In which row will the diffusion of ions into a cell be the quickest?

	ion concentration in the cell	ion concentration in the external solution	surface area of the cell	width of the cell membrane
A	high	low	large	thin
B	low	high	small	thick
C	high	low	small	thick
D	low	high	large	thin

3 The diagram shows a section through an alveolus and through a capillary.



How does carbon dioxide move from **Y** to **X**?

A by active transport

B by diffusion

C by osmosis

D by transpiration

4 What is an example of diffusion?

A dust particles being moved by ciliated cells in the trachea

B oxygen molecules moving into a red blood cell in the lungs

C pollen grains moving from anthers to stigmas in the wind

D red blood cells moving in a blood capillary in a muscle

5 What causes the diffusion of oxygen into a plant cell?

A active transport

B movement of molecules

C osmosis

D photosynthesis

6 Which process causes oxygen to pass from an alveolus in the lung into a blood capillary?

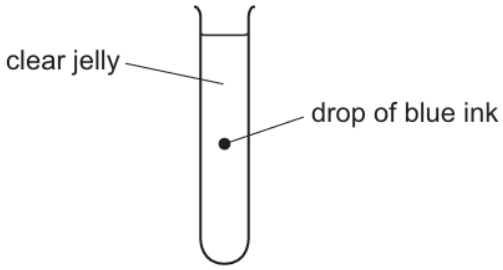
A assimilation

B diffusion

C excretion

D osmosis

7 The diagram shows a test-tube containing clear jelly. A drop of blue ink is injected into the middle of the jelly.



The blue colour of the ink spreads throughout the jelly.

By which process does the blue ink spread through the jelly?

A active transport

B catalysis

C diffusion

D osmosis

8 Which statements are correct for **both** diffusion and osmosis?

	involves movement of water only	requires energy from respiration	molecules move from higher concentration to lower concentration
A	✓	✓	✓
B	✓	✓	✗
C	✗	✗	✓
D	✗	✗	✗

key
✓ = yes
✗ = no

9 Particles can move into and out of cells by diffusion.

Which statement about diffusion is correct?

A Particles move from a region of lower concentration to a region of higher concentration.

B Particles only move into cells by diffusion.

C The net movement of particles is against a concentration gradient.

D The process involves the random movement of particles.

10 Which statement describes the net movement of particles during diffusion?

A from higher to lower concentration down a concentration gradient

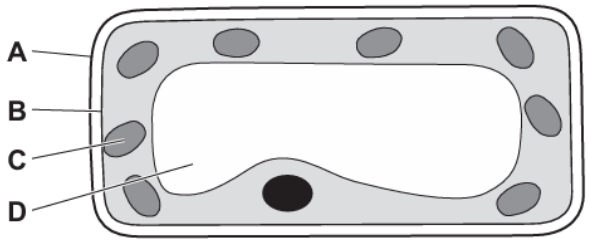
B from higher to lower concentration against a concentration gradient

C from lower to higher concentration down a concentration gradient

D from lower to higher concentration against a concentration gradient

11 The diagram shows a section through a mesophyll cell of a leaf.

Which part is partially permeable?



12 By which process does oxygen move from a region of higher concentration in the alveoli to a region of lower concentration in the blood?

A osmosis

B breathing

C diffusion

D active transport

13 Which words complete the definition of diffusion?

'Diffusion is the net movement of particles from a region of their ……1…... concentration to a region of their ……2…... concentration, ……3…... a concentration gradient.'

	1	2	3
A	higher	lower	up
B	higher	lower	down
C	lower	higher	up
D	lower	higher	down

14 Which statement about diffusion is correct?

A The process requires energy from respiration.

B The particles must cross a cell membrane.

C The net movement of particles is up a concentration gradient.

D The process involves the random movement of particles.

15 By which process do oxygen and carbon dioxide move between cells and capillaries?

A breathing

B diffusion

C excretion

D respiration

16 What is an example of diffusion?

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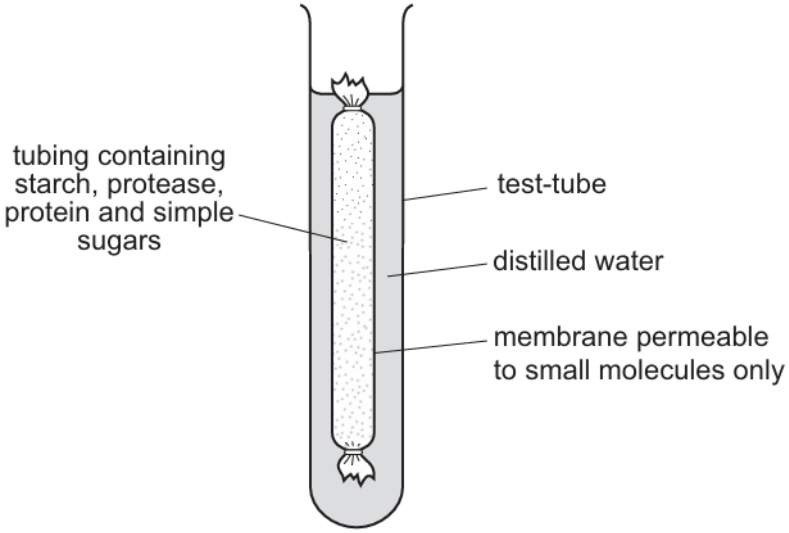
17 The diagram shows an experiment kept at room temperature.



What is present in the water surrounding the membrane after 45 minutes?

A amino acids and simple sugars

B protein and amino acids

C protein and simple sugars

D starch and simple sugars

18 How do carbon dioxide and oxygen move into and out of a mesophyll cell?

A active transport

B diffusion

C respiration

D transpiration

Paper 2

Questions are applicable for both core and extended candidates

19 Which words complete the definition of diffusion?

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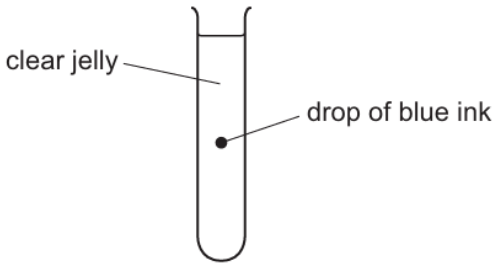

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