Multiple-choice test
Chapter 3: Movement in and out of cells

Click on the correct answer to each question.

1 How do oxygen molecules diffuse from a region of high concentration to a region of low concentration?

A as a result of their random movement

B by moving directly towards the area of low concentration

C by moving up a concentration gradient

D by osmosis

2 Which statement about osmosis is correct?

A It only happens if the cell provides energy.

B Solutions move from their high concentration to their low concentration.

C Sugar moves from its low concentration to its high concentration.

D Water molecules diffuse down their concentration gradient.

3 Which is an example of diffusion?

A the flow of blood through a blood vessel

B the loss of urine from the body

C the movement of food through the digestive system

D the net movement of oxygen into a cell

S 4 Some plant cells were placed in a concentrated sugar solution. Their cytoplasm and cell membranes shrank and pulled away from the cell walls.
What is the term for this condition?

A bursting

B permeability

C plasmolysis

D turgidity

S 5 In the plant cells described in question 4, what will be found in the gap between the cell wall and the cell membrane?

A cell sap
B cytoplasm
C sugar solution
D water

6 When animal cells are placed in pure water, they burst. Plant cells do not burst in these conditions.
Why don't the plant cells burst?

A The cell wall prevents water entering the cell.
B The cell wall provides support and stops the cell expanding too much.
C Osmosis only takes place in animal cells, not plant cells.
D Plant cells have a higher concentration than animal cells.

7 A student put some pieces of raw potato into a concentrated sugar solution. The potato pieces got shorter.
Why did this happen?

A The potato cells gained sugar by diffusion.
B The potato cells lost water by osmosis.
C The solution in the vacuoles came out of the potato cells.
D The sugar solution went into the potato cells.

S 8 A piece of onion epidermis was placed in a sugar solution on a microscope slide. All of the onion cells became plasmolysed.
Which statement is correct?

A The sugar solution diffused into the onion cells.
B The sugar solution diffused out of the onion cells.
C The water potential of the contents of the onion cells was higher than the water potential of the sugar solution.
D The water potential of the contents of the onion cells was lower than the water potential of the sugar solution.

9 Which statement describes active transport?

A the movement of substances down a concentration gradient, with no need for energy supplied by the cell
B the movement of substances up a concentration gradient, with no need for energy supplied by the cell
C the movement of substances down a concentration gradient, using energy from respiration
D the movement of substances up a concentration gradient, using energy from respiration

S

10 Which could take place by active transport?

A the movement of carbon dioxide into a photosynthesising leaf

B the movement of carbon dioxide out of a respiring cell

C the movement of nitrate ions into a root hair cell

D the movement of oxygen into a respiring cell