

6 Which row shows correct statements about active transport?

	direction of movement	requires a partially permeable membrane
A	down a concentration gradient	no
B	down a concentration gradient	yes
C	against a concentration gradient	no
D	against a concentration gradient	yes

18 Which process requires energy from respiration?

- A** diffusion
- B** osmosis
- C** protein synthesis
- D** transpiration

4 A student made the following statements about the movement of ions by active transport.

- 1 It is the net movement of particles from a low concentration to a high concentration.
- 2 It is the net movement of particles from a high concentration to a low concentration.
- 3 It requires the use of energy from respiration.
- 4 It can only take place in living cells.

Which statements are correct?

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

19 Which process in plants uses energy from respiration?

- A** cell division
- B** osmosis
- C** photosynthesis
- D** transpiration

6 Three processes are listed.

- 1 Molecules or ions are moved across membranes.
- 2 Molecules or ions are moved by protein carriers.
- 3 Ions are taken up by root hairs.

Which processes can involve active transport?

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

1 Fig. 1.1 shows the movement of particles through an epithelial cell in the small intestine.

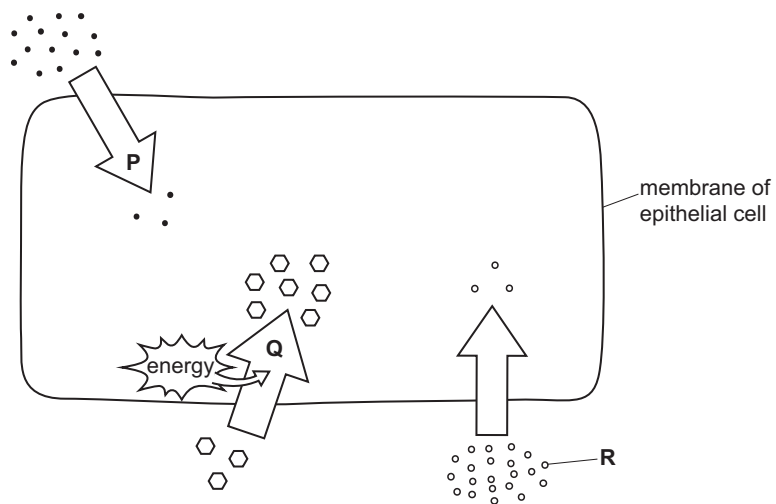


Fig. 1.1

(a) In Fig. 1.1, arrow **P** represents the diffusion of oxygen molecules.

(i) Describe what is meant by the term diffusion.

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..... [2]

(ii) State the type of energy needed for diffusion.

..... [1]

(b) Carbon dioxide molecules also move by diffusion.

(i) State the name of the process in human cells that produces carbon dioxide.

..... [1]

(ii) On Fig. 1.1, draw an arrow to show the direction of diffusion of carbon dioxide molecules. [1]

(c) In Fig. 1.1, arrow **Q** represents another type of particle movement.

Identify the type of particle movement represented by arrow **Q**.

Explain your answer.

type of movement

explanation

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..... [3]

(d) In Fig. 1.1, particle **R** moves from the lumen of the small intestine into the epithelial cell.

Suggest why particle **R cannot** be starch.

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..... [2]

(e) Fig. 1.2 is a photomicrograph of red onion cells.

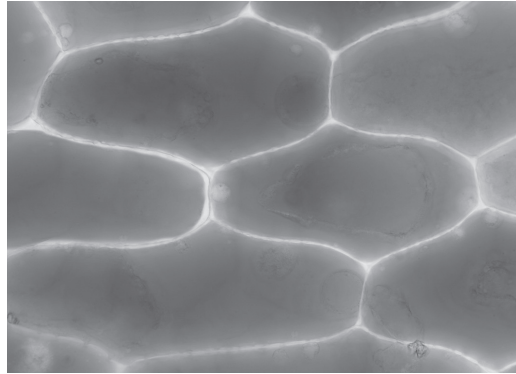


Fig. 1.2

Fig. 1.3 is a photomicrograph of the same red onion cells after being immersed in a salt solution.

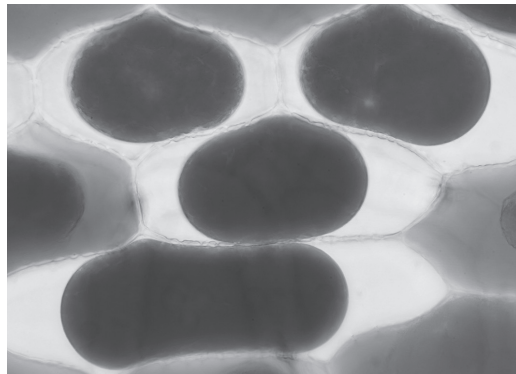


Fig. 1.3

Using Fig. 1.2 and Fig. 1.3, describe **and** explain the difference in appearance of the cells before and after immersion in salt solution.

[6]

[Total: 16]