

**GCSE Biology A (Gateway)**

**J247/01 B1-B3 and B7 Foundation (Foundation Tier)**

**Question Set 2**

Multiple Choice Questions

B2: Scaling Up

1

A student uses a microscope.

The magnification on the eyepiece lens is  $\times 10$ .

The magnification on the objective lens is  $\times 4$ .

What is the total magnification?

A 2.5

B 6

C 14

D 40

$$10 \times 4 = 40$$

Your answer

D

[1]

2 Which type of plant cell takes in water?

A Guard cell

B Phloem cell

C Root hair cell

D Xylem cell

Your answer

C

[1]

3

In DNA, which base does A (adenine) pair with?

A A

B C

C G

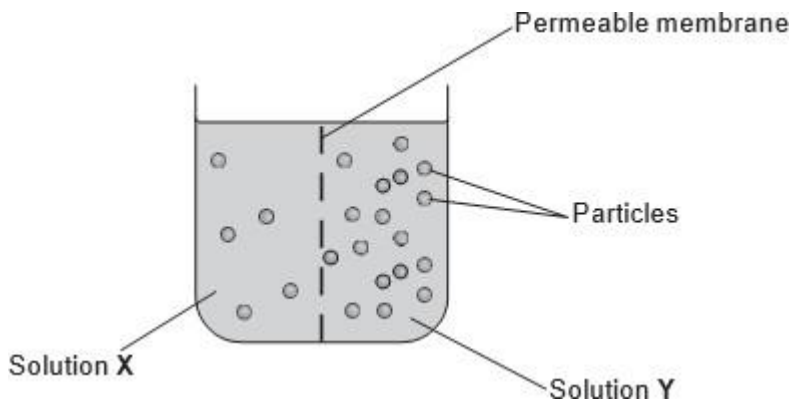
D T

Your answer

T

[1]

4 Look at the diagram. It shows the particles dissolved in two solutions.



The particles can diffuse through the permeable membrane.

Which statement about the particles is true in this diagram?

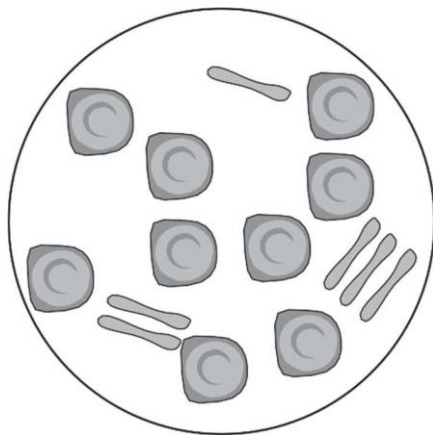
- A Particles move in both directions across the permeable membrane.
- B Particles only move from X to Y.
- C Particles only move from Y to X.
- D Particles stop moving when the concentrations become equal.

Your answer

C

[1]

5 Which type of human cell is shown in this diagram?



- A Egg cells
- B Red blood cells
- C Sperm cells
- D White blood cells

Your answer

B

[1]

6 Why do plant root hair cells use active transport to take in minerals?

- A Minerals are dissolved in water in the soil.
- B Minerals are needed by the plant in very low concentrations.
- C Minerals are present at very high concentrations in the soil.
- D Minerals are present at very low concentrations in the soil.

Your answer

D

[1]

7 Which one of these stages comes **first** during mitosis?

- A The nuclear membrane forms.
- B The nuclear membrane breaks down.
- C Chromosomes separate.
- D Chromosomes line up on the equator.

Your answer

B

[1]

8 Transpiration has a cooling effect on the leaves of plants.

Which statement **best** describes how this happens?

- A Evaporation of water from the leaf removes heat energy.
- B Water entering the stomata takes heat energy from the leaf surface.
- C Water dripping off the leaf causes heat energy to be lost.
- D Water falling on the leaf removes heat energy.

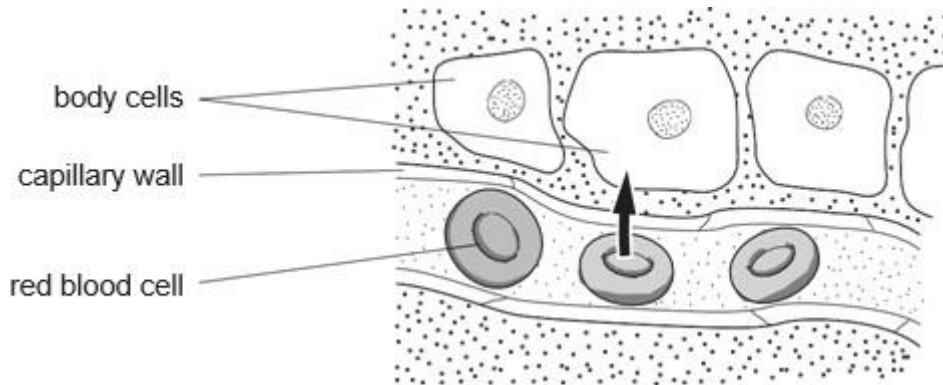
Your answer

A

[1]

9 The diagram shows the direction of **oxygen** transfer from red blood cells to body cells.

What process does the arrow show?



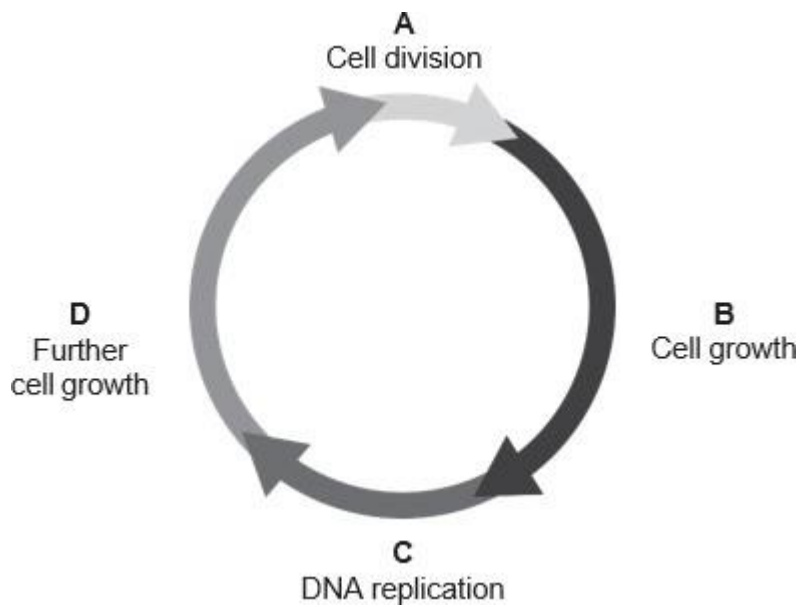
- A Active transport
- B Diffusion
- C Osmosis
- D Transpiration

Your answer

**B**

[1]

10 During which phase of the cell cycle does mitosis happen?



Your answer

**A**

[1]

11 A cube of potato is used to investigate the effect of surface area on osmosis.

The cube is  $3 \times 3 \times 3$  cm.

What is the surface area to volume ratio of the cube?

A 1:2

B 2:1

C 6:1

D 1:6

$$\underline{SA} = 6(3 \times 3) = \underline{54 \text{ cm}^2}$$

$$\underline{V} = 3 \times 3 \times 3 = \underline{27 \text{ cm}^3}$$

$$54 : 27$$

$$\underline{2 : 1}$$

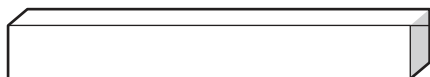
Your answer

**B**

[1]

12 An experiment is carried out to find the concentration of potato tissue.

Four chips are cut from a potato.



At the start, each chip is 50mm long, 10mm wide and 10mm high.

Each chip is put in a different sucrose solution A, B, C and D.

The volumes of the chips are calculated after 1 hour.

$$\underline{\text{Start volume}} = 50 \times 10 \times 10 = \underline{5000 \text{ mm}^3}$$

Sucrose solution	Volume of chip (mm <sup>3</sup> )
A	50
B	500
C	5000
D	50 000

Which sucrose solution has the same concentration as the potato tissue?

Your answer

**C**

[1]

**Total Marks for Question Set 2: 12**

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