Oxford Cambridge and RSA

GCSE Biology A (Gateway)

J247/03 Paper 3 Biology (Higher Tier)

Question Set 22

Multiple Choice Questions

B2: Scaling Up

1. Look at the table. Which row describes active transport?

	Only occurs across a membrane	Uses ATP	Only moves substances from	
			low to high concentration	high to low concentration
A		✓		✓
B	✓	✓	✓	
C	✓		✓	
D	✓	✓		✓

Your answer B

[1]

2 Look at some of the stages in mitosis.

1 The nuclear membrane forms.

2 The nuclear membrane breaks down.

3 Chromosomes separate.

4 Chromosomes line up on the equator.

What is the correct order of these stages during mitosis?

A 1 → 3 → 2 → 4

B 1 → 4 → 3 → 2

C 2 → 4 → 3 → 1

D 3 → 2 → 4 → 1

Your answer C

[1]

3 A student uses a simple potometer to study the effect of different temperatures on the cut shoot ofa plant.

What does the potometer actually measure?

A Volume of water evaporating from the leaves of the shoot

B Volume of water produced by respiration in the shoot

C Volume of water taken up by the shoot

D Volume of water used in photosynthesis in the shoot

Your answer C

[1]

4 A plant cell is placed in a solution with a higher solute concentration than the cell contents.

What will happen to the plant cell?

A Absorb water until it bursts.

B Absorb water until it is turgid.

C Lose cytoplasm and shrink.

D Lose water and become flaccid.

Your answer D

[1]

5 The surface area of a single red blood cell is 1.5×10^{-4} mm^2.
The volume is 1×10^{-7}mm^3.

What is the surface area to volume ratio of a red blood cell?

A 0.0015 : 1

B 0.7 : 1

C 1.5 : 1

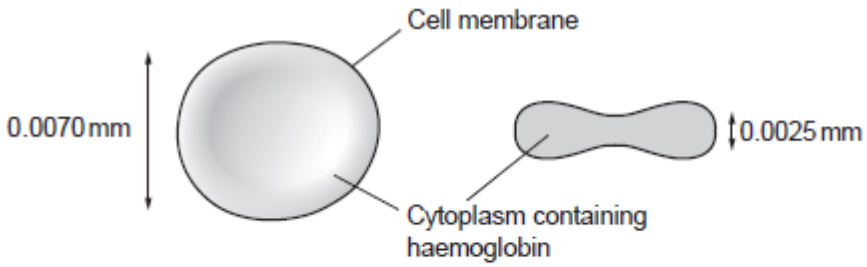
$\frac{1.5 \times 10^{-4}}{1 \times 10^{-7}} = \frac{1500}{1}$

D 1500 : 1

Your answer D

[1]

6 The diagram shows a red blood cell.



	Distance oxygen travels to get to haemoglobin from blood plasma	Surface area to volume ratio	Nucleus present
A	Large	Small	Yes
B	Short	Large	Yes
C	Short	Large	No
D	Large	Large	No

Which row in the table shows how red blood cells are adapted for transport of oxygen?

Your answer C

[1]

7 Which is a function of carrier proteins in a cell membrane?

A Transfer impulses across a synapse

B Transfer molecules by active transport

C Transport amino acids in protein synthesis

D Transport molecules around the blood

Your answer B

[1]

8 Sieve plates are structures found in plants.

What is their location and function?

A Found in phloem and allow movement of sucrose

B Found in phloem and allow movement of water

C Found in xylem and allow movement of sucrose

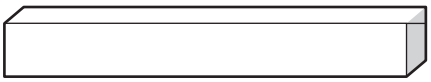
D Found in xylem and allow movement of water

Your answer A

[1]

9 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 50 mm long, 10 mm wide and 10 mm 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.

Sucrose solution	Volume of chip (mm^3)
A	50
B	500
C	5000
D	50 000

Starting volume :
$50 \times 10 \times 10 = 5000\ mm^3$

Starting volume = Final volume

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

Your answer C

[1]

Total Marks for Question Set 2: 19