



The National Orthodox School /Shmaisani

Subject: Science

Name:

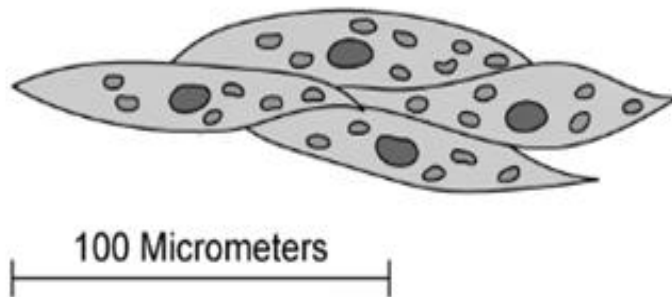
Worksheet : Cells

Date:

Grade-Section: 9 IB

Question 1 :

The figure below shows some muscle cells which contain many mitochondria.



Key:

● = Nucleus

● = Mitochondrion

Figure 3

Give a reason why muscle cells contain many mitochondria.

To release energy for respiration

Question 2 :

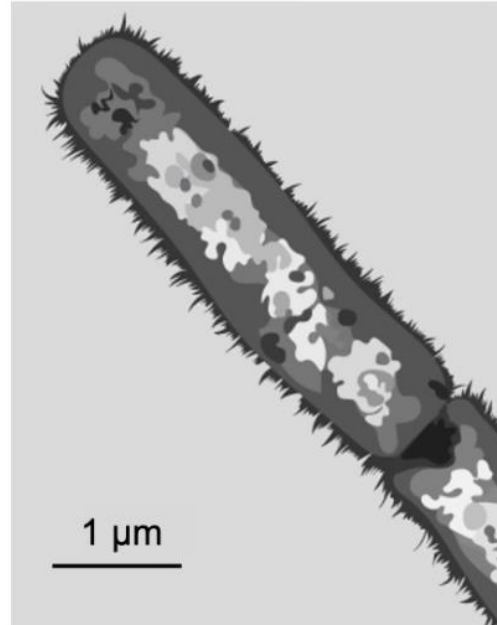
The figure below shows an image of a bacterial cell taken with an electron microscope.

The width of the bacterial cell is estimated at 1 μm . The bacterial cell is 2 cm wide in the image .

Calculate the magnification of the image .

Using the scale bar

$$\begin{aligned} M &= \frac{I}{A} \\ &= \frac{2 \times 10000}{1} \\ &= 20000 \times \end{aligned}$$



Question 3 :

Describe one type of cell which is atypical to the concept of cell theory.

- ✓ The **striated muscle fibres** which are larger than most animal cells and have many nuclei.
- ✓ **Giant algae** (such as acetabularia) which are *single-celled organisms with a much larger size than a normal cell.*
- ✓ **Aseptate fungi** consist of thread-like structures called hyphae. These hyphae are not divided up into sub-units containing a single nucleus. Instead *there are long undivided sections of hypha which contain many nuclei.*

Question 4 :

The table shows information about the magnification of a light microscope.

Magnification of eyepiece lens	Magnification of objective lens	Total magnification
10 x	4 x	40 x
10 x	10 x	100x
10 x	40 x	400x

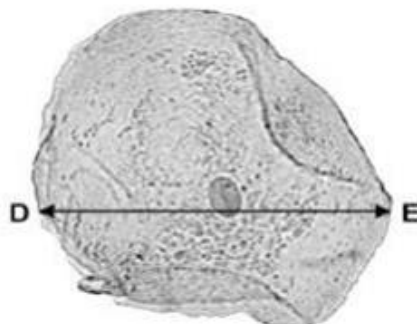
Complete the empty cells in the table .

Question 5 :

The cheek cell in **Figure 2** is magnified 250 times.

The width of the cell is shown by the line **D** to **E**.

Figure 2



Calculate the width of the cheek cell in micrometres (μm).

Complete the following steps.

Measure the width of the cell using a ruler **5 x 10 = 50** mm

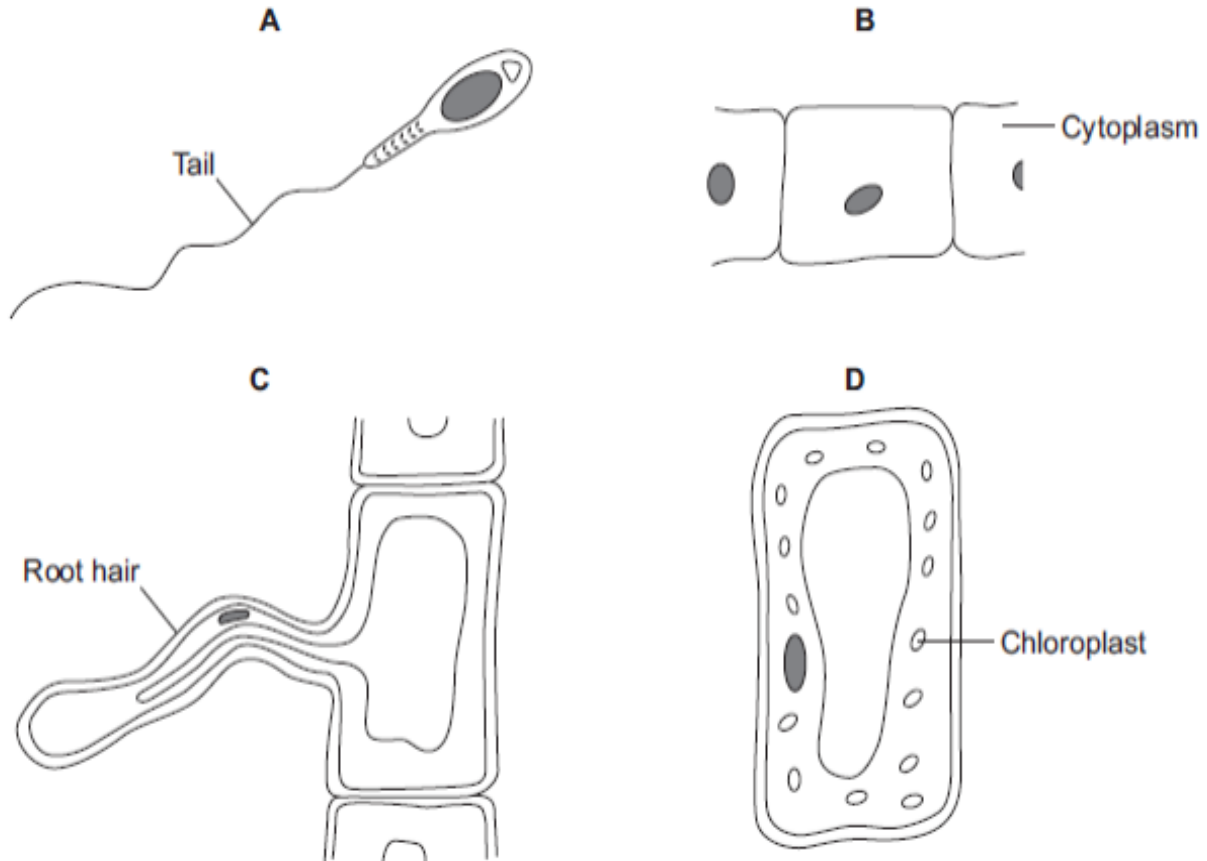
Use the equation to work out the real width of the cell in mm:

real size = $\frac{\text{image size}}{\text{magnification}}$ **0.2** mm

Convert mm to μm **200** μm

Question 6 :

The diagrams show four types of cell, **A**, **B**, **C** and **D**.
Two of the cells are plant cells and two are animal cells.



Which **two** of the cells are plant cells?

Tick (✓) **one** box.

A and B

A and D

C and D

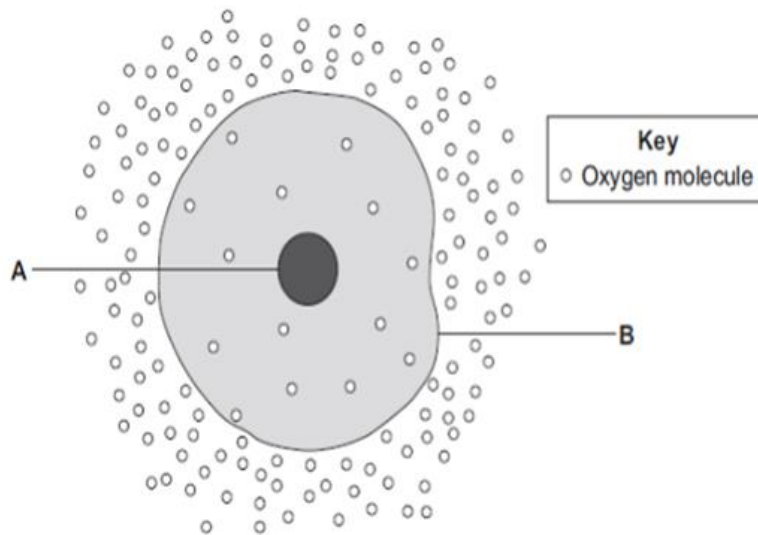
Give **one** reason for your answer.

Both have a cell wall

.....

Question 7 :

The diagram shows a cell.



(a) (i) Use words from the box to name the structures labelled **A** and **B** .

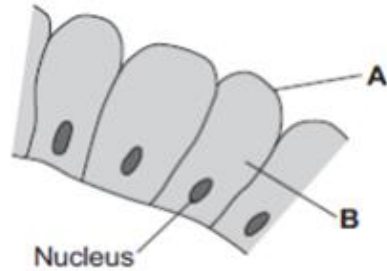
cell membrane chloroplast cytoplasm nucleus

A Nucleus

B cell membrane

Question 8 :

The image below shows some cells in the lining of the stomach.



(a) Use words from the box to name structures **A** and **B**.

cell membrane	chloroplast	cytoplasm	vacuole
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A **cell membrane**.....
B **cytoplasm**.....

What is the function of the nucleus?

Tick (✓) **one** box.

To control the activities of the cell

To control movement of substances into and out of the cell

To release energy in respiration

(b) Draw one line from each part of the human body to its correct scientific name

