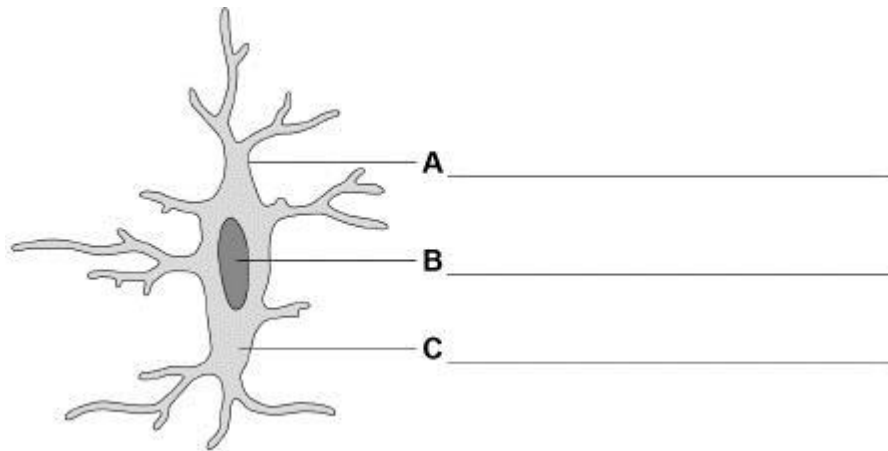


KS4 Combined Science (Trilogy) Homework 1

Q1. The diagram below shows a human bone cell.



(a) Label the cell structures **A**, **B** and **C** on the diagram above.

(3)

(b) Which structure in the cell contains DNA?

Tick (✓) **one** box.

A B C

(1)

(c) A student used a microscope to view a cell.

The length of the image of the cell was 40 mm

The real length of the cell was 0.25 mm

Calculate the magnification of the image.

Use the equation:

$$\text{magnification} = \frac{\text{length of image}}{\text{length of real object}}$$

Magnification = x _____

(2)

- (d) Root hair cells are found on the roots of plants. Root hair cells do **not** photosynthesise.

Give **one** structure found in a leaf cell, but **not** in a root hair cell.

(1)

- (e) Which **two** structures are found in plant cells but **not** in animal cells?

Tick (✓) **two** boxes.

Cell wall

Mitochondria

Permanent vacuole

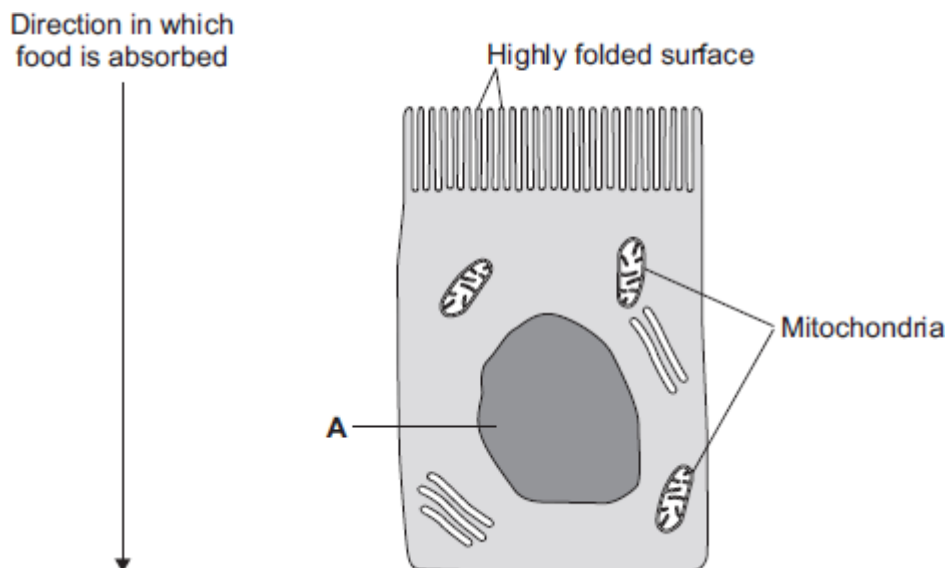
Plasmid

Ribosome

(2)

(Total 9 marks)

Q2. The image below shows an epithelial cell from the lining of the small intestine.



- (a) (i) In the image above, the part of the cell labelled **A** contains chromosomes.

What is the name of part **A**?

(1)

- (ii) How are most soluble food molecules absorbed into the epithelial cells of the small intestine?

Draw a ring around the correct answer.

diffusion osmosis respiration

(1)

- (b) Suggest how the highly folded cell surface helps the epithelial cell to absorb soluble food.

(1)

- (c) Epithelial cells also carry out active transport.

- (i) Name **one** food molecule absorbed into epithelial cells by active transport.

(1)

- (ii) Why is it necessary to absorb some food molecules by active transport?

(1)

- (ii) Suggest why epithelial cells have many mitochondria.

(2)

- (d) Some plants also carry out active transport.

Give **one** substance that plants absorb by active transport.

(1)

(Total 8 marks)

