

Name of the Student: _____

Max. Marks : 18 Marks

Time : 18 Minutes

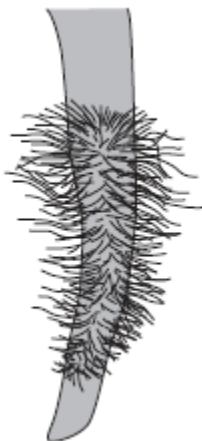
Q1.

Plant roots absorb water from the soil by osmosis.

(a) What is osmosis?

(3)

(b) The image below shows part of a plant root.



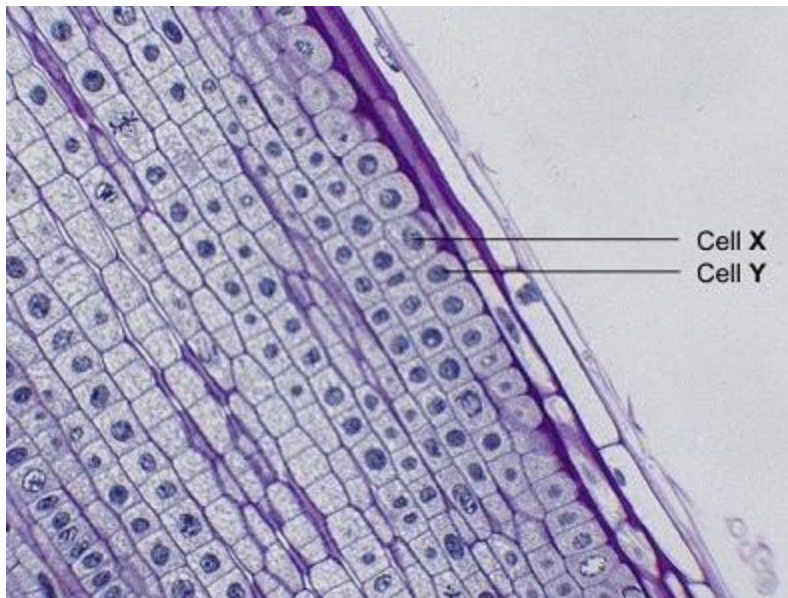
The plant root is adapted for absorbing water from the soil.

Use information from the diagram to explain how this plant root is adapted for absorbing water.

(3)
(Total 6 marks)

Q2.

The photograph shows some cells in the root of an onion plant.



By UAF Center for Distance Education [CC BY 2.0], via Flickr

(a) Cells X and Y have just been produced by cell division.

(i) Name the type of cell division that produced cells X and Y.

(1)

(ii) What happens to the genetic material before the cell divides?

(1)

(b) A gardener wanted to produce a new variety of onion.

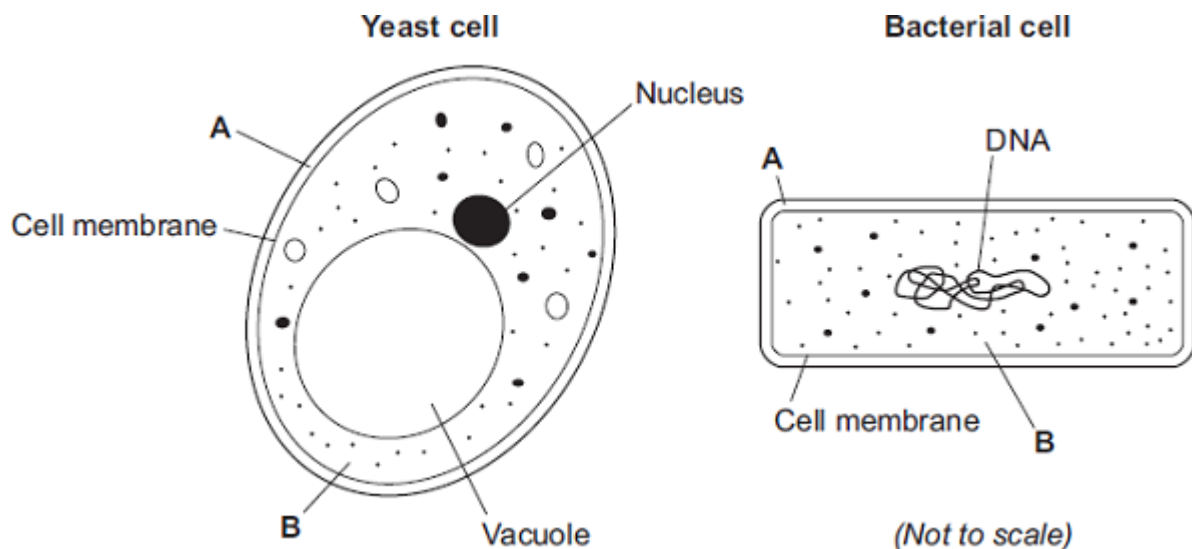
Explain why sexual reproduction could produce a new variety of onion.

(3)

(Total 5 marks)

Q3.

- (a) The diagrams show the structures of a yeast cell and a bacterial cell.



- (i) Both the yeast cell and the bacterial cell have structures **A** and **B**.

Name structures **A** and **B**.

A _____

B _____

(2)

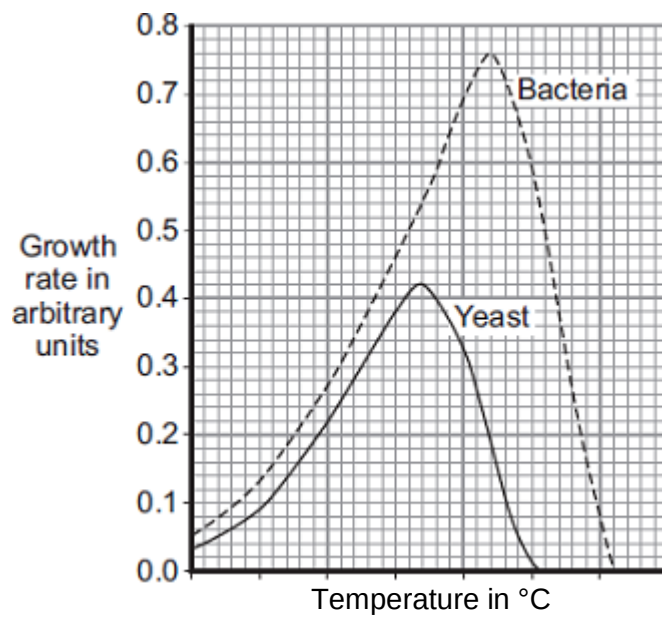
- (ii) The yeast cell and the bacterial cell have different shapes and sizes.

Give **one** other way in which the structure of the bacterial cell is different from the structure of the yeast cell.

(1)

- (b) Sourdough bread is light in texture and tastes slightly sour. The bread is made using two types of microorganism, a yeast and a bacterium. The bacterium can make acids such as lactic acid. The acid makes the bread taste sour.

The graph shows how the growth rates of the yeast and the bacteria change with temperature.



- (i) Sourdough bread rises fastest at 27°C.

Use information from the graph to explain why.

(2)

- (ii) The bread tastes most sour if it rises at 32°C.

Use information from the graph to explain why.

(2)

(Total 7 marks)