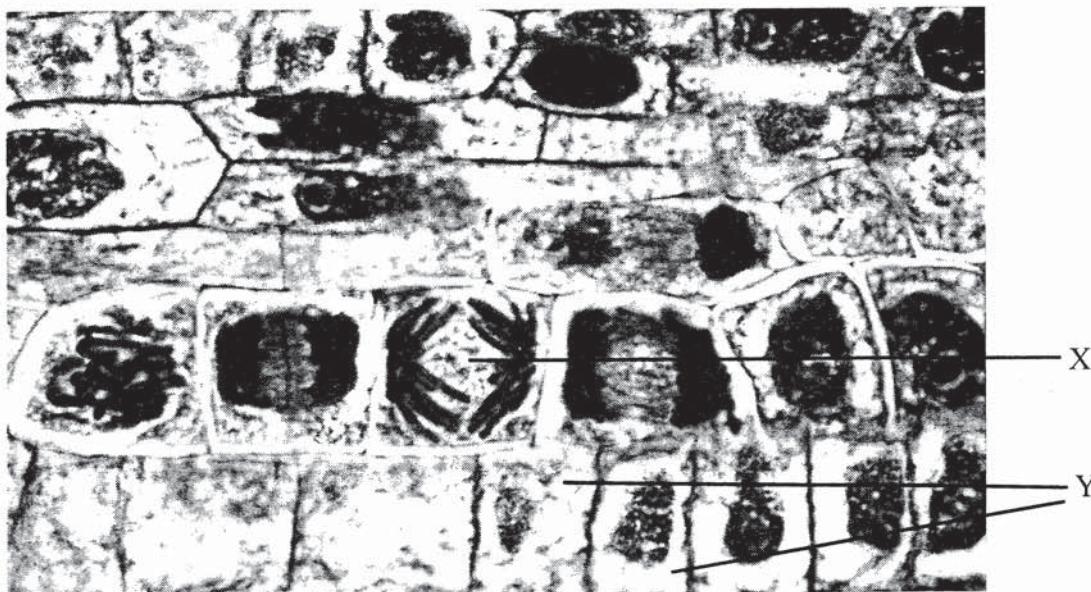


1. (a) The photomicrograph below shows cells undergoing mitosis in a root tip.



Manfred Kage/Science Photo Library

- (i) Name the stage of mitosis shown by the cell labelled X.

..... (1)

- (ii) Explain why the cells labelled Y are smaller than cell X.

.....
..... (1)

- (iii) Suggest why so few of the cells in the photograph are at the same stage of mitosis as cell X.

.....
..... (1)

- (iv) Suggest why no chromosomes are visible in some of the cells.

.....
..... (1)

(b) (i) Describe what is meant by the term **DNA replication**.

Leave
blank

.....

.....

.....

.....

(2)

(ii) At what stage of the cell cycle does DNA replication take place?

.....

(1)

(c) Diagram A below shows the chromosomes in a cell in an early stage of meiosis.

Complete diagram B to show the chromosomes of **one** of the cells that will be produced when meiosis of the cell in diagram A is complete.

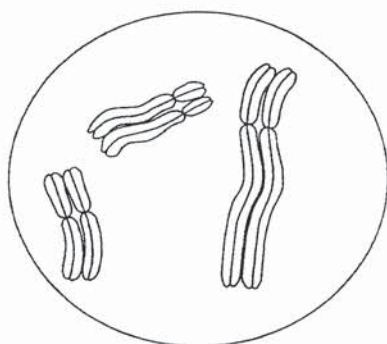


Diagram A

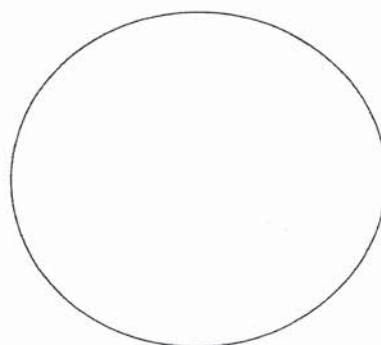


Diagram B

(2)

Q1

(Total 9 marks)