

# 17. Inheritance

## 17.2 Mitosis

### Paper 3 and 4

Question Paper

## Paper 3

**Questions are applicable for extended candidates only**

1 (c) Table 2.1 contains statements about mitosis and meiosis.

Complete Table 2.1 by placing ticks (✓) in the boxes to show the correct statements about mitosis and meiosis.

**Table 2.1**

statement	mitosis	meiosis
a type of nuclear division		
gives rise to genetically different cells		
important for the repair of damaged tissues		
needed for growth		
produces gametes		
used in asexual reproduction		

[6]

2 Table 2.1 lists some descriptions of meiosis and mitosis.

Complete Table 2.1 by placing a tick (✓) in each box that is correct.

**Table 2.1**

description of process	meiosis	mitosis
can result in growth		
is a nuclear division		
occurs in asexual reproduction		
produces egg cells		
replaces damaged cells		

[5]

## Paper 4

**Questions are applicable for extended candidates only**

**3 (c)** All cells develop from stem cells.

Describe what is meant by the term stem cell.

.....  
.....  
.....

[2]

**4** Mitosis and meiosis are both important processes for life.

**(a)** Complete the sentences about mitosis and meiosis.

Mitosis is a type of nuclear division which produces genetically identical cells.

It is important for growth, ..... of tissues and

..... reproduction.

Just before mitosis the chromosomes are replicated and then the chromosomes

..... so that the chromosome number is maintained in each

daughter cell.

Meiosis is another type of nuclear division that is involved in the production of

gametes. The chromosome number is halved from ..... to

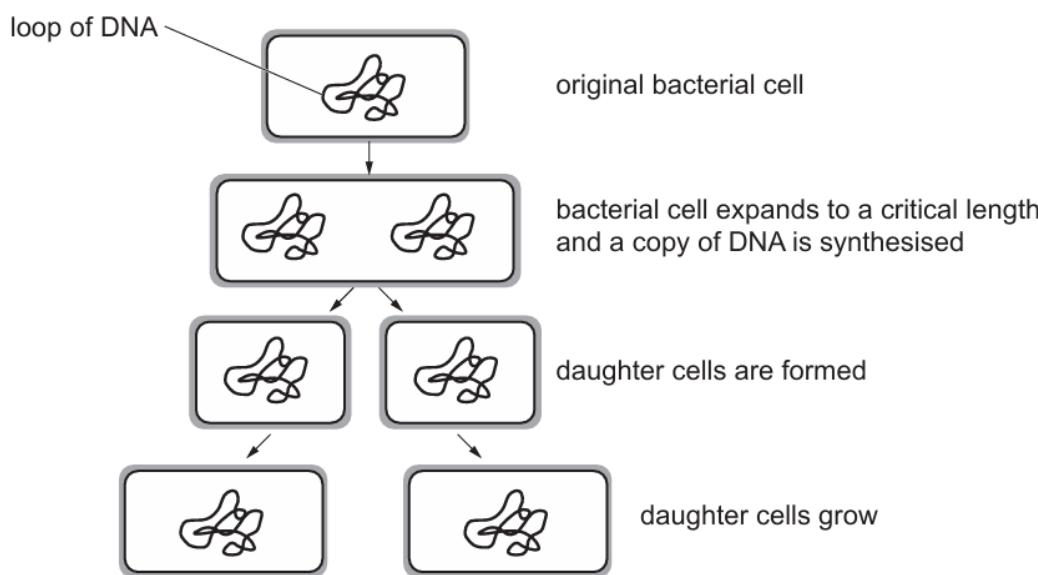
haploid resulting in genetically different cells. The fusion of the nuclei of two gametes

formed by meiosis forms a ..... . This process is known as

.....

[6]

5 Fig. 5.1 shows some of the stages in the reproduction of the bacterium *Escherichia coli*.



**Fig. 5.1**

(a) Complete the sentences about the cells in Fig. 5.1.

The DNA is in the form of a double ..... . The DNA is copied so that the number of loops of DNA after cell division is ..... in each daughter cell. The daughter cells are genetically ..... to the original cell.

[3]

6 (c) Fig. 6.2 shows a plant tissue in which cells are dividing by mitosis.

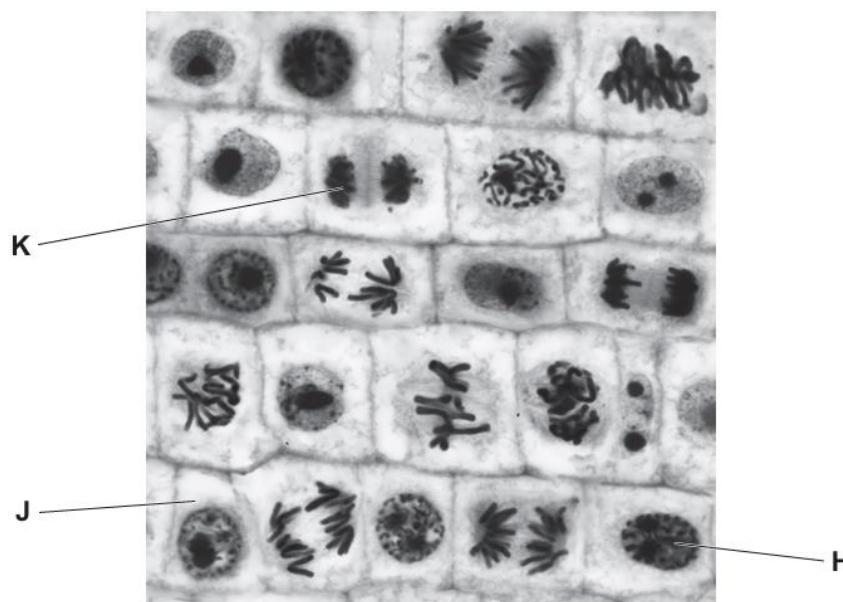


Fig. 6.2

(i) Cell **H** in Fig. 6.2 is about to divide by mitosis.

State what happens to the chromosomes in cell **H** before mitosis takes place **and** state why it is necessary.

.....  
.....  
.....  
.....  
.....  
.....

[2]

(ii) Cell **K** is about to divide into two cells.

State the structures that will form between the nuclei so that the cell divides into two cells.

.....  
.....

[2]

(iii) Cell J in Fig. 6.2 is an example of a diploid cell.

State what is meant by the term diploid.

.....  
.....  
.....

[1]