Cell Division

Total mark – 16

Question: 1

Q2.

This question is about cell division.

(a) Which process makes two identical new body cells for growth and repair?

Tick (✓) **one** box.

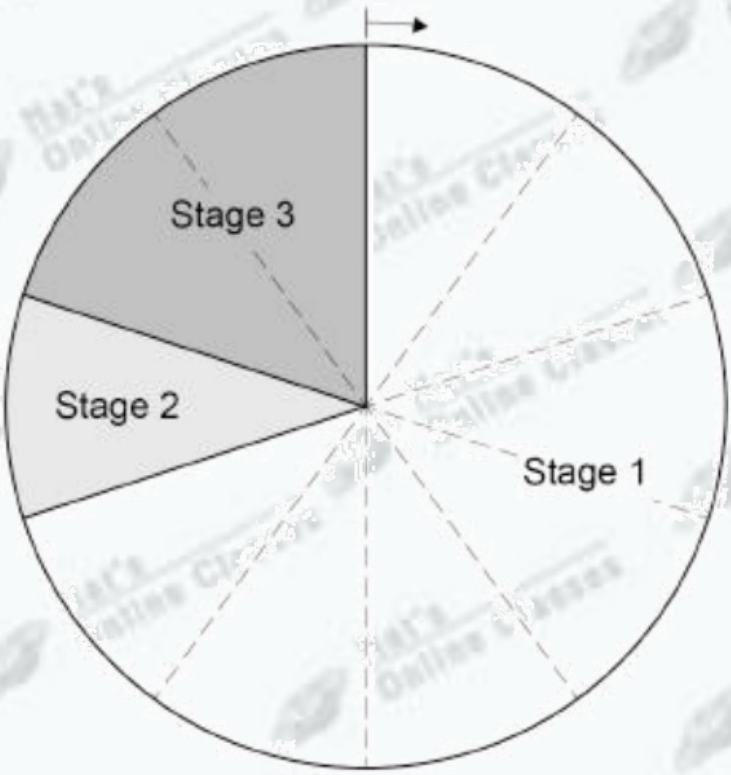
Differentiation ☐

Fertilisation ☐

Mitosis ☐

(1)

The chart shows the three stages of a cell cycle.



(b) Draw **one** line from each stage of the cell cycle to what happens during that stage.

Stage of cell cycle	**What happens during that stage**
Stage 1	One set of chromosomes is pulled to each end of the cell
Stage 2	The cytoplasm and cell membrane divide to form two new cells
Stage 3	The cell grows and the chromosomes replicate

(2)

(c) What percentage of the total time for the cell cycle is taken by stage 1?

_____

_____

_____

Percentage = _____ %

(2)

(d) A cell divides to form two new cells every 24 hours.

How many days will it take for the original cell to divide into 8 cells?

Tick (✓) **one** box.

1 ☐ 3 ☐ 6 ☐ 8 ☐

(1)

(e) The chromosomes contain the genetic material.

Name the chemical which the genetic material is made from.

_____

(1)

(f) The genetic material is made of many small sections.

Each section codes for a specific protein.

What is one section of genetic material on a chromosome called?

Tick (✓) **one** box.

A gamete ☐

A gene ☐

A nucleus ☐

(1)

(g) Stem cells are cells which have **not** yet been specialised to carry out a particular job.

Bone marrow cells are one example of stem cells.

Explain how a transplant of bone marrow cells can help to treat medical conditions.

_____

_____

_____

_____

(2)

(Total 10 marks)

Question: 2

Q4.

There are two types of cell division: mitosis and meiosis.

(a) Describe **three** differences between the processes of mitosis and meiosis.

1 _____

_____

_____

2 _____

_____

_____

3 _____

_____

_____

(3)

(b) Describe **one** similarity between the processes of mitosis and meiosis.

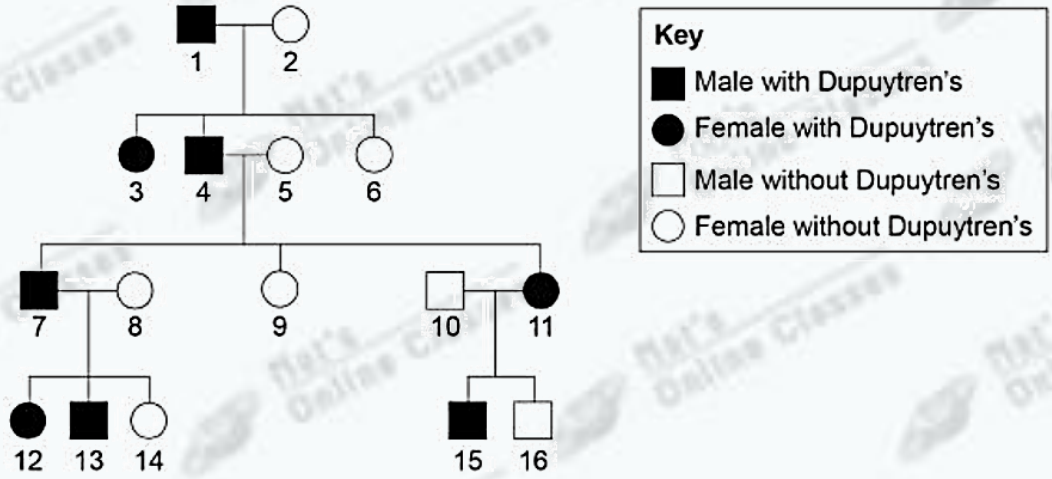
_____

_____

(1)

Dupuytren's is a disorder that affects the hands.

The diagram below shows the inheritance of Dupuytren's in one family.



Dupuytren's is caused by a dominant allele in this family.

D = dominant allele

d = recessive allele

(c) Give the genotype of person **1**.

Explain your answer.

Genotype _____

_____

_____

(2)