

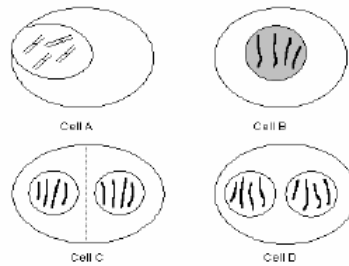
## B5 Level Assessed Task2

1

Answer all questions.

1. Mary looks at some plant cells through a microscope.

She sees some cells in the process of dividing.



- (a) What is this type of cell division called?

Draw a ring round the correct answer.

meiosis

mitosis

sexual reproduction

[1]

- (b) Each cell shows a different stage of division. The stages are shown in the wrong order.

Write down the stages in their correct order. The first one has been done for you.

B			
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[2]

- (c) How many chromosomes are shown in cell A?

.....[1]

[Total: 4]

2. Scientists can use embryonic stem cells to clone other human cells.

(a) Put ticks (✓) in the boxes next to the statements that best explain why this is possible.

Embryonic stem cells are not specialised.

Single cells divide very slowly.

Cloning is banned in many countries.

Single cells can produce large numbers of cells.

Embryonic stem cells do not live very long.

[2]

(b) Cells in a human embryo divide as the embryo grows.

The cells divide into two at each stage.

How many cells are present when the cells start to become specialised?

.....[1]

(c) Most body cells are specialised cells.

Put ticks (✓) in the boxes next to the statements that are true about specialised cells.

Form different types of tissue.

Do not live very long.

Only some genes are active.

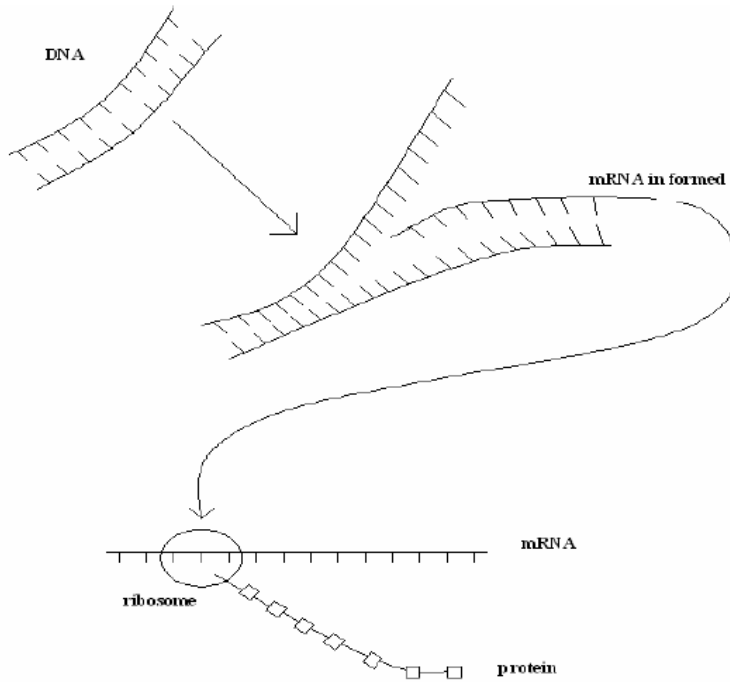
Are only found in embryos.

All contain the same genes.

[3]

[Total: 6]

3. The diagram shows how proteins are formed in a cell.



Use your knowledge of how proteins are made and the diagram to answer the following questions.

- (a) Which molecule is only found in the nucleus?.....[1]
- (b) Where in the cell will the ribosome be found? .....[1]
- (c) Which molecule copies the order of bases on the DNA molecule?  
.....[1]
- (d) What is the name of the type of molecule that joins together to form the protein?  
.....[1]

[Total: 4]

Answer **all** the questions.

1 This question is about growth in plants and animals.

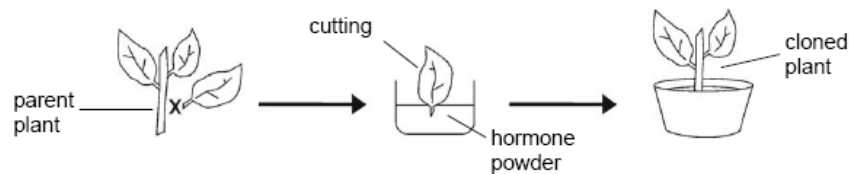
(a) Complete the following table about growth in plants and animals.

Put a tick (✓) in the correct box in **each** row.

feature	true for both plants and animals	only plants	only animals
most continue to grow in height and width <b>throughout</b> their lives			
different types of tissue contain <b>specialised</b> cells			
some cells are still <b>unspecialised</b> even in adults			

[3]

(b) For many years, cuttings have been used to produce clones of plants.



The cut surface is dipped into a hormone powder before planting.

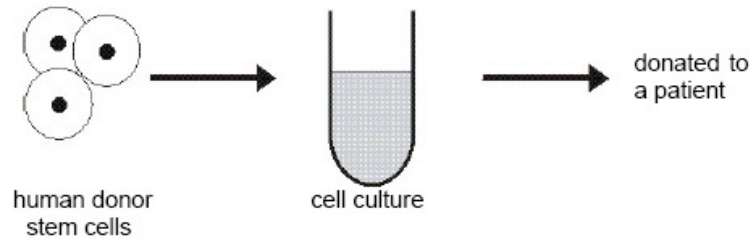
Why is hormone powder used?

Put a tick (✓) in the box next to the correct answer.

- to stop water loss
- to help root growth
- to make the plant flower
- to stop disease spreading

[1]

- (c) Animal cells can also be cloned.  
David is a member of a stem cell research team.  
He removes stem cells from human tissue.  
He cultures the cells and uses them to treat a patient.



Complete the sentences by choosing the best word from each pair.

Put a ring around the correct answer for each sentence.

Some of the genes in the donor stem cells are active and some are inactive.

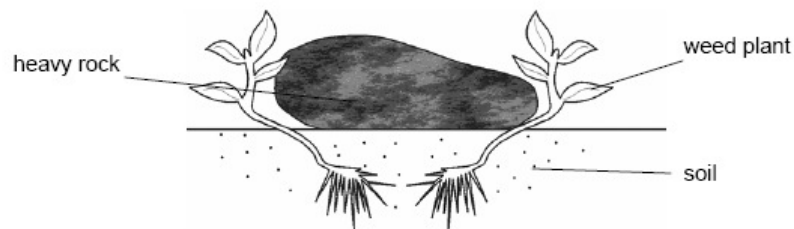
Under special culture conditions genes can be..... **inactivated** / **reactivated**.

This treats patients because the cells..... **repair** / **replace** damaged tissues.

[1]

[Total: 5]

- 2 (a) Robyn is trying to remove weeds from her garden.  
She finds it difficult because some have their roots under a heavy rock.



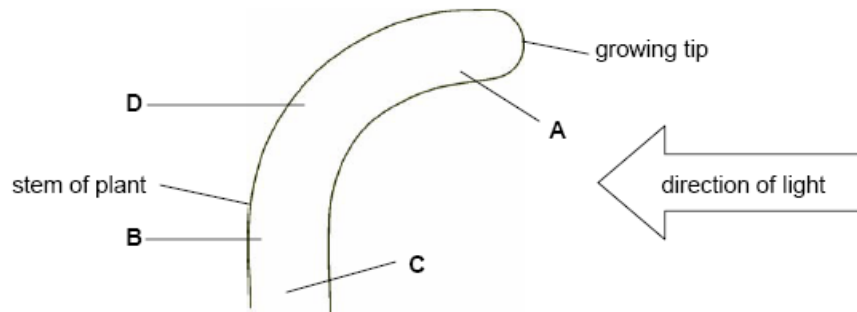
The weeds are showing the result of phototropism.

What is the advantage of phototropism for plants?

- A They are able to take in more water.
- B They can compete better for light.
- C They grow faster.

answer ..... [1]

- (b) Robyn draws a model to show the action of auxin during phototropism in a growing plant stem.



- (i) In which area, **A**, **B**, **C** or **D**, is the auxin **produced**?  
 answer ..... [1]
- (ii) In which area, **A**, **B**, **C** or **D**, is there **increased** cell expansion as a result of auxin action?  
 answer ..... [1]

- (c) Light affects the concentration of auxin on the light and shaded parts of the stem.

Which of the following is the **best** explanation for the unequal distribution of auxin?

Put a tick (✓) in the correct box.

- More auxin is made in the light.
- More auxin is made in the shade.
- Auxin moves across the stem to the light.
- Auxin moves across the stem towards the shady side.

[1]

[Total: 4]

3 (a) There is a clear link between genes and protein synthesis.

Complete the sentences by choosing the best word from each pair.

Put a **ring** around the correct answer for each sentence.

The genetic code is stored in the..... **cytoplasm / nucleus**.

Proteins are made in the..... **cytoplasm / nucleus**.

The genes are portions of the molecule..... **DNA / RNA**.

Genes are made from combinations of different bases arranged in groups of..... **two / three**.

[2]

(b) The control of protein synthesis follows a number of steps.

(i) Here are four of the steps in protein synthesis. They are in the wrong order.

- A Protein is synthesised.
- B The genetic code is copied.
- C The code is read by a ribosome.
- D Amino acids are put into a specific order.

Fill in the boxes to show the right order. The first one has been done for you.

<b>B</b>			
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[2]

(ii) There is an error in the genetic code.

Which of these statements may be a consequence of this?

- A The code cannot be read.
- B The code cannot be copied.
- C The wrong protein is synthesised.

answer ..... [1]

[Total: 5]