B1 L7 Stem cells: Exam questions worksheet

AQA GCSE Combined Science: Trilogy (8464) and Biology (8461)
Biology Paper 1 · Topic B1 Cell biology

Name _____ Class _____

Total: ..... / 20

Instructions
- Answer **all** questions in the spaces provided.
- Use black ink or black ball-point pen.
- The marks for each question are shown in brackets.
- In calculations, show clearly how you work out your answer.
- Time: about 25 minutes.

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0 1 Stem cells are found in different places.

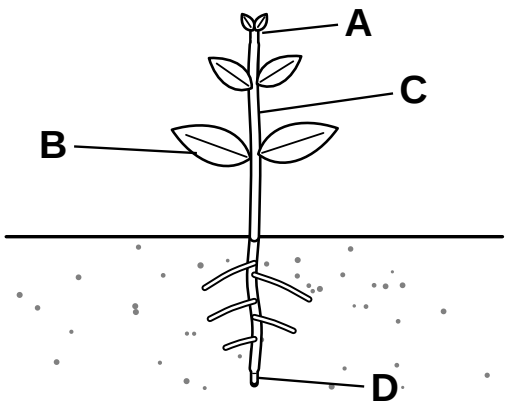
0 1 . 1 Draw **one** line from each source of stem cells to what its stem cells can become. [3 marks]

Source of stem cells	What the stem cells can become
Embryo	Only nerve cells
Adult bone marrow	Most types of human cell
Plant meristem	Any type of plant cell
	Only one type of plant cell
	Many types of cell, including blood cells

0 1 . 2 **Figure 1** shows a young plant.

Four parts of the plant are labelled **A**, **B**, **C** and **D**.

Figure 1



Which **two** letters show where meristem tissue is found? [1 mark]

☐ and ☐

Do not write outside the box

0 2 A rare plant is in danger of extinction.

Scientists grew new plants of this species in two ways.

Table 1 shows the results.

Table 1

Method	What the scientists started with	Number of new plants after 6 months
Planting seeds	200 seeds	18
Cloning meristem cells	1 shoot tip	450

0 2 . 1 Only some of the seeds grew into new plants. [2 marks]

Calculate the percentage of the seeds that grew into new plants.

Percentage = ... %

0 2 . 2 Use **Table 1** to give **one** advantage of cloning the plant from meristem cells. [1 mark]

.....

.....

0 2 . 3 Which statement about the 450 cloned plants is correct? [1 mark]

Tick (✓) **one** box.

- They are all different from each other. ☐
- They are all genetically identical. ☐
- They each have half of the parent plant's genes. ☐
- They can resist every disease. ☐

0 2 . 4 **Suggest one** disadvantage of growing this rare plant only as clones. [1 mark]

.....

.....

Turn over for the next question

Do not write outside the box

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0 3 Some patients need new cells to replace cells that are damaged.

0 3 . 1 Therapeutic cloning could make stem cells for a patient. [1 mark]

What is produced in therapeutic cloning?

Tick (✓) **one** box.

- A baby with the same genes as the patient ☐
- An embryo with the same genes as the patient ☐
- Bone marrow from a donor ☐
- A plant clone from meristem cells ☐

0 3 . 2 A doctor says: [2 marks]

"Stem cells from therapeutic cloning are better for this patient than stem cells from another person."

Explain why.

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.....

0 4 Paralysis can happen when nerve cells are damaged, for example in an accident. [2 marks]

Describe how stem cells might be used to help a person with paralysis.

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Do not write outside the box

Turn over for the next question

0 5 Scientists are researching the use of embryonic stem cells to treat conditions such as diabetes. [6 marks]

Evaluate the use of embryonic stem cells in medical treatments.

END OF QUESTIONS

There are no more questions in this paper. Original practice paper © sciencegcse.co.uk – free to use for non-commercial education. Not an AQA paper.

Do not write outside the box