**Q1.**

This question is about stem cells.

(a)  Give **one** place in a plant where stem cells are found.

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**(1)**

(b)  What is **one** economic use of plant stem cells?

Tick **one** box.

|  |  |
| --- | --- |
| To create genetically modified crops |  |
| To create new species of plants |  |
| To increase variation in plants |  |
| To produce large numbers of identical plants |  |

**(1)**

Embryonic stem cells divide by mitosis.

**Figure 1** represents a cell cycle for a human embryonic stem cell.

**Figure 1**

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(c)  The mass of DNA in the cell at the start of the cycle is 6 picograms.

A picogram is 10−3 nanograms.

Convert 6 picograms to grams.

Give your answer in standard form.

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Mass = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ g **(1)**

(d)  The time taken for this complete cell cycle is 15 hours.

Calculate how many hours the cell spent in mitosis.

Give your answer to 3 significant figures.

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Time spent in mitosis = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ hours

**(2)**

(e)  Describe what happens in each of the three stages of the cell cycle.

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 **(Total 10 marks)**