**0 1** A student did an experiment to investigate growth in plants. He took 5 seeds and planted them in some compost. They were planted outdoors within 1 square meter

| Plant Number | Height (cm) | | | | Growth rate cm/day |
|---|---|---|---|---|---|
| | Day 2 | Day 4 | Day 6 | Day 8 | |
| 1 | 2.5 | 4.0 | 5.0 | 6.4 | |
| 2 | 2.0 | 3.5 | 4.5 | 5.6 | 0.7 |
| 3 | 1.5 | 2.3 | 3.0 | 3.2 | 0.4 |
| 4 | 2.5 | 3.5 | 4.2 | 4.8 | 0.6 |
| 5 | 0.5 | 0.9 | 1.4 | 1.6 | 0.2 |

**0 1 . 1** Calculate the mean growth rate per day for plant number 1. **[2 marks]**

Mean growth rate = _____ cm/day

**0 1 . 2** The lowest growth rate recorded by the student was for plant number 5

Give two environmental factors that may have caused plant number 5 to have the lowest growth rate

**[2 marks]**

Factor 1 _____

Factor 2 _____

**0 1 . 3** Suggest a factor other than an environmental one which might have caused the plant to have the lowest growth rate

**[1 mark]**

**0 1 . 4** Height of the plant may not be the best measure of growth of the plants in the experiment.

Suggest why **[1 mark]**

**0 2 . 1** The temperatures in the desert can reach up to 60 degrees C with the sand reaching even higher temperatures. The Sahara desert ant is well adapted to survive

Scientists describe the ants as **extremophiles**

What is meant by the term **extremophile** **[2 marks]**

**0 2 . 2** Here are some facts about the ants.

* they deliberately come out at the hottest point in the day to eat insects which have died from the heat exposure
* they only stay out for short periods
* they have long legs and move easily across the sand

Explain why these features help the ant to survive **[4 marks]**