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

<table>
<thead>
<tr>
<th>Plant number</th>
<th>Day 2</th>
<th>Day 4</th>
<th>Day 6</th>
<th>Day 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.5</td>
<td>4.0</td>
<td>5.0</td>
<td>6.4</td>
</tr>
<tr>
<td>2</td>
<td>2.0</td>
<td>3.5</td>
<td>4.5</td>
<td>5.6</td>
</tr>
<tr>
<td>3</td>
<td>1.5</td>
<td>2.3</td>
<td>3.0</td>
<td>3.2</td>
</tr>
<tr>
<td>4</td>
<td>2.5</td>
<td>3.5</td>
<td>4.2</td>
<td>4.8</td>
</tr>
<tr>
<td>5</td>
<td>0.5</td>
<td>0.9</td>
<td>1.4</td>
<td>1.6</td>
</tr>
</tbody>
</table>

1 (a) (i) Calculate the mean growth rate per day for plant number 1. [2 marks]

Mean growth rate = ........................................... cm/day

1 (a) (ii) The lowest growth rate recorded by the student was for plant number 5.

Give two environmental factors may have caused plant number 5 to have the lowest growth rate. [2 marks]

Factor 1 ........................................................................................................

Factor 2 ........................................................................................................

1 (a) (iii) Suggest a factor other than an environmental one which might have caused the plant to have the lowest growth rate. [1 mark]

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1 (a) (iv) Height of the plant may not be the best measure of growth of the plants in the experiment.

Suggest why. [1 mark]

........................................................................................................
1 (b) The diagram below shows the Sahara desert ant.

![Image of Sahara desert ant]

The temperatures in the desert can reach up to 60°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]

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1 (b) (i) 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 quickly across the sand.

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

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(Total 12 marks)

End

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