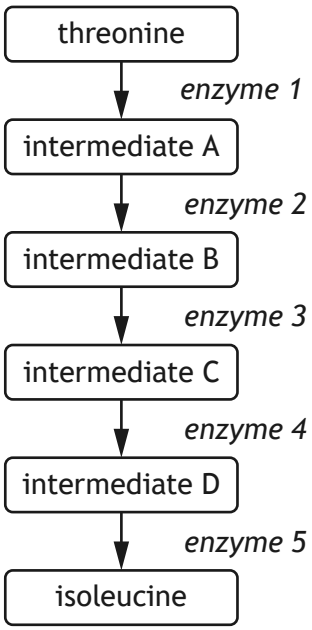
6. The diagram shows a metabolic pathway, which converts the amino acid threonine to another amino acid isoleucine in cells.



Enzyme 1 catalyses the breakdown of threonine to intermediate A.

(a) (i) Name this type of metabolic reaction. **1**

_____

(ii) Describe what happens to the active site of enzyme 1 when threonine binds to it and explain how this increases the rate of reaction. **2**

Description _____

_____

Explanation _____

_____

[Turn over

6. (continued)

(b) When concentrations of isoleucine reach a high level, the metabolic pathway is blocked.

Describe how this happens and suggest how this is an advantage to the cell. **2**

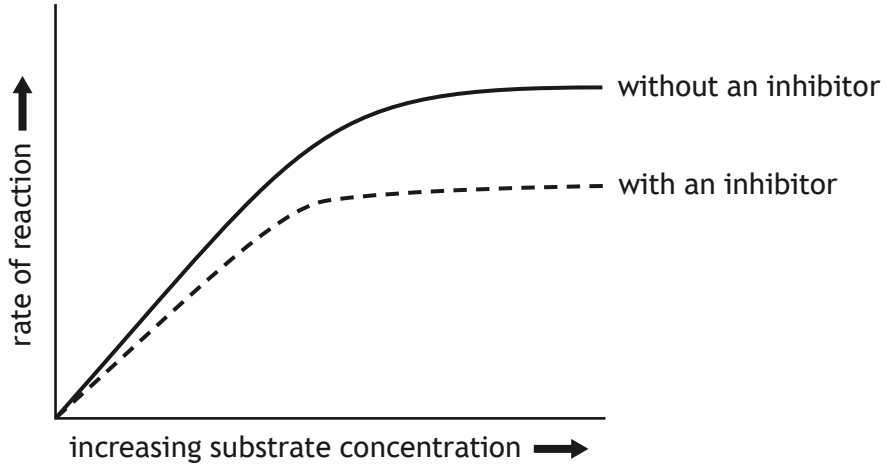
Description _____

_____

Advantage _____

_____

(c) The graph shows the rate of isoleucine synthesis with and without an inhibitor.



(i) Explain why the rate of reaction levels off at high substrate concentrations without an inhibitor. **1**

_____

_____

(ii) This is an example of non-competitive inhibition.

Use information from the graph to support this statement. **1**

_____

_____

_____