

## Enzymes – 2022 November O Level 5090

### 1. Nov/2022/Paper\_11/No.5

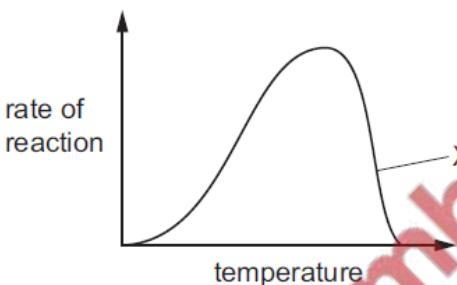
Which statements are correct?

- 1 Enzymes are proteins and function as catalysts.
- 2 Enzymes are changed by the reaction they catalyse.
- 3 The 'lock and key' hypothesis explains the way that enzymes function.

**A** 1, 2 and 3    **B** 1 and 2 only    **C** 1 and 3 only    **D** 2 and 3 only

### 2. Nov/2022/Paper\_11/No.6

The diagram shows the effect of temperature on the rate of an enzyme-controlled reaction.



What is the explanation for the part of the graph labelled X?

**A** The temperature is dropping.

**B** The substrate is starting to run out.

**C** The enzyme is becoming denatured.

**D** The enzyme is starting to run out.

### 3. Nov/2022/Paper\_12/No.5

Fats are broken down by the enzyme lipase to produce fatty acids and glycerol.

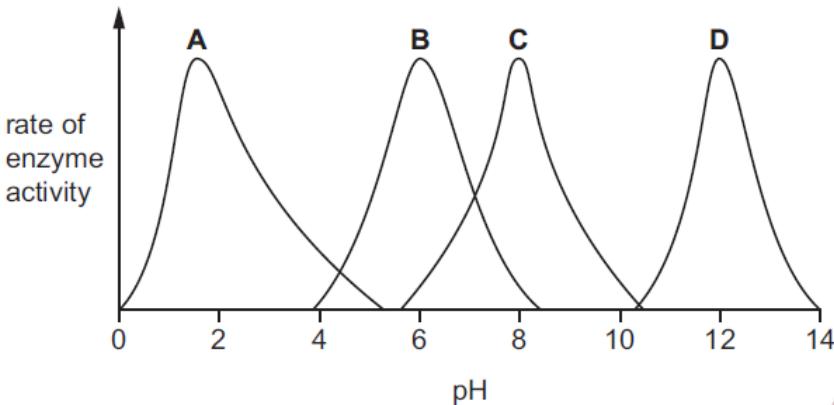
According to the 'lock and key' model of enzyme action, what is the 'lock' and what is the 'key' in this reaction?

	lock	key
<b>A</b>	fats	lipase
<b>B</b>	lipase	fats
<b>C</b>	fats	fatty acids and glycerol
<b>D</b>	lipase	fatty acids and glycerol

4. Nov/2022/Paper\_12/No.6

The graph shows the effect of varying pH values on the activity of four different enzymes, A, B, C and D.

Which enzyme is active in the stomach?



5. Nov/2022/Paper\_21/No.4(a, b)

Amylases are enzymes that are made in specific cells of animals and plants and also by bacteria. In humans, amylase is secreted into the alimentary canal in saliva and in pancreatic juice.

(a) (i) Explain what is meant by the term enzyme.

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[2]

(ii) Outline **two** structural features of enzyme molecules.

1 .....

2 .....

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[2]

(iii) Name both the substrate and product of amylase.

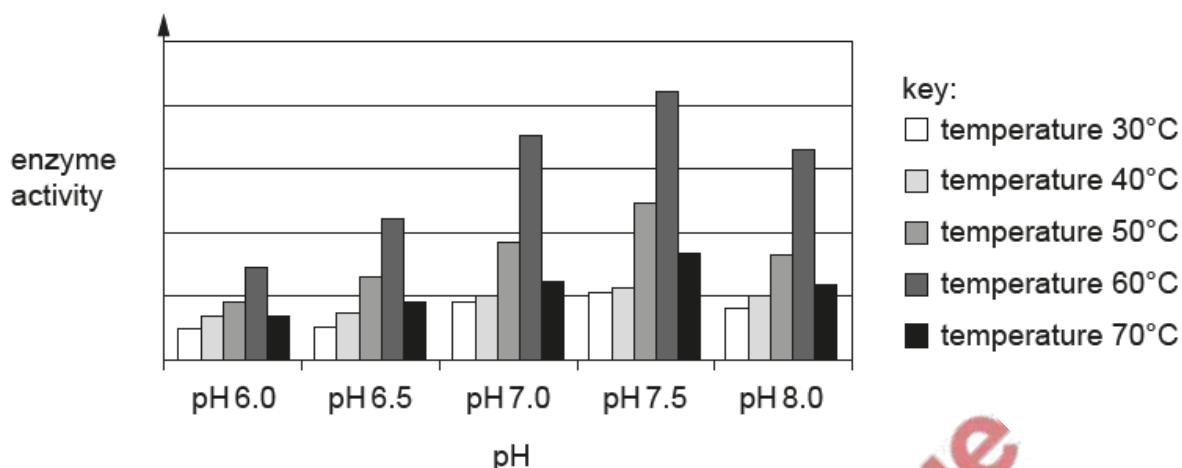
substrate .....

product .....

[2]

(b) Amylase produced by bacteria can be used as part of an industrial process that converts plants such as corn into biofuel. Biofuels can be used instead of diesel or petrol.

The bar chart shows how the activity of amylase is affected by temperature and pH.



(i) Describe what the data in the bar chart show about the activity of the enzyme and explain why this information is useful for the producers of biofuels.

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[4]

(ii) Biofuels can be burnt in vehicle engines.

Suggest how biofuels can result in pollution and cause environmental change.

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[2]