Enzymes – 2022 November IGCSE 0610 Biology

1. Nov/2022/Paper_11/No.10

Which description of an enzyme-catalysed reaction is correct?

A The substrate binds to an enzyme with the same shape and a product is formed.

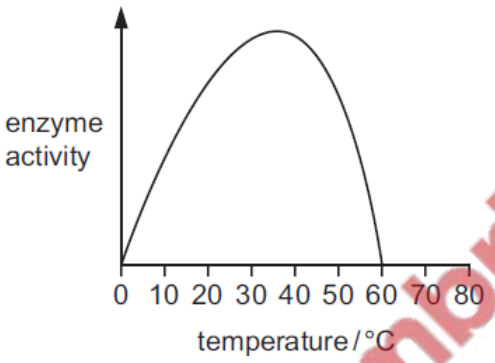
B The product binds to an enzyme with the same shape and a substrate is formed.

C The product binds to an enzyme with a complementary shape and a substrate is formed.

D The substrate binds to an enzyme with a complementary shape and a product is formed.

2. Nov/2022/Paper_11/No.11

The graph shows the effect of temperature on the activity of an enzyme.



At which temperature is the enzyme most active?

A 15 °C **B** 25 °C **C** 35 °C **D** 60 °C

3. Nov/2022/Paper_12/No.10

Which statement about enzymes is correct?

A They are made of carbohydrates.

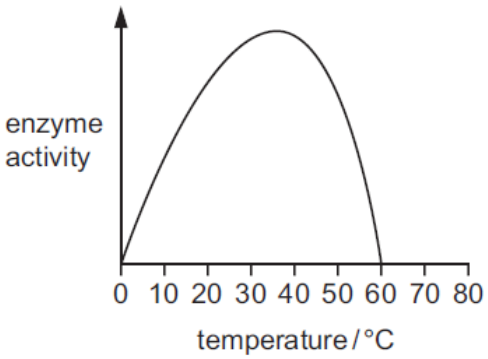
B Their activity is unaffected by pH.

C They are used up during the reaction.

D They have a complementary shape to their substrate.

4. Nov/2022/Paper_12/No.11

The graph shows the effect of temperature on the activity of an enzyme.



At which temperature is the enzyme most active?

A 15 °C **B** 25 °C **C** 35 °C **D** 60 °C

5. Nov/2022/Paper_12/No.15

Which statement is correct?

A Amylase breaks down glucose to starch.

B Amylase is secreted into the mouth and small intestine.

C Lipase breaks down glycerol to fatty acids.

D Protease is secreted into the oesophagus and stomach.

6. Nov/2022/Paper_13/No.10

The equation shows the digestion of protein to amino acids.

$$\text{protein} \xrightarrow{\text{protease}} \text{amino acids}$$

In the equation, what is protease?

A a catalyst

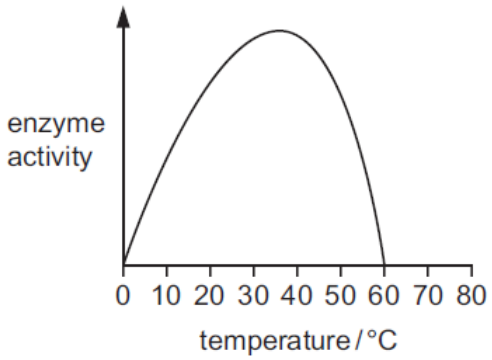
B a product

C a solvent

D a substrate

7. Nov/2022/Paper_13/No.11

The graph shows the effect of temperature on the activity of an enzyme.



At which temperature is the enzyme most active?

A 15 °C **B** 25 °C **C** 35 °C **D** 60 °C

8. Nov/2022/Paper_21/No.8

Amylase and pepsin are digestive enzymes. The shapes of their active sites are different.

What causes the difference in the shapes of their active sites?

A They are produced by different parts of the digestive system.

B They have different pH ranges.

C They contain different sequences of amino acids.

D They are made of different proportions of the bases A, T, C and G.

9. Nov/2022/Paper_21/No.9

The rate of an enzyme-controlled reaction decreases when the temperature falls below the optimum.

Some possible reasons why it slows down are listed.

1 The enzyme molecules are denatured.

2 The molecules have less kinetic energy.

3 The shapes of the substrate molecules are changed.

4 There are less frequent collisions between molecules.

Which reasons cause the reaction to slow down?

A 1 and 3 **B** 1 and 4 **C** 2 and 3 **D** 2 and 4

10. Nov/2022/Paper_21/No.10

Which description of an enzyme-catalysed reaction is correct?

A The substrate binds to an enzyme with the same shape and a product is formed.

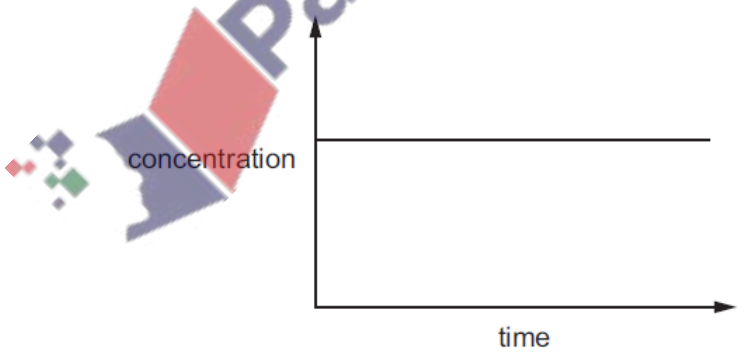
B The product binds to an enzyme with the same shape and a substrate is formed.

C The product binds to an enzyme with a complementary shape and a substrate is formed.

D The substrate binds to an enzyme with a complementary shape and a product is formed.

11. Nov/2022/Paper_22/No.8

The graph shows the concentration of a substance during the course of an enzyme-controlled reaction.



Which substance is this?

A enzyme

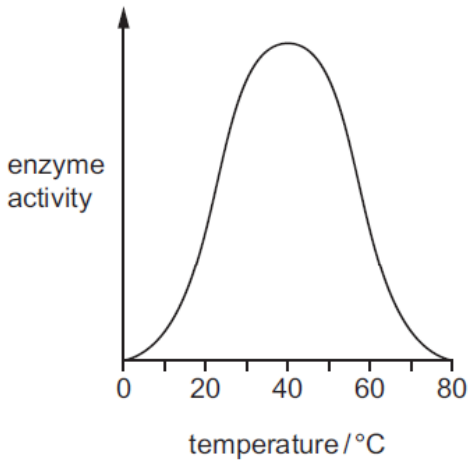
B enzyme-substrate complex

C product

D substrate

12. Nov/2022/Paper_22/No.9

The graph shows the effect of temperature on the activity of an enzyme.



At which temperature do effective collisions happen most frequently?

A 15 °C **B** 40 °C **C** 60 °C **D** 80 °C

13. Nov/2022/Paper_22/No.10

Which statement about enzymes is correct?

A They are made of carbohydrates.

B Their activity is unaffected by pH.

C They are used up during the reaction.

D They have a complementary shape to their substrate.

14. Nov/2022/Paper_23/No.7

The list shows some statements about enzymes.

1 They all contain the element nitrogen.

2 They are proteins.

3 They can be denatured by cold temperatures.

4 Their specificity is due to the complementary shapes of the active site and the substrate.

Which statements are correct?

A 1, 2 and 3 **B** 1, 2 and 4 **C** 2 and 4 only **D** 3 and 4

15. Nov/2022/Paper_42/No.2

Fig. 2.1 is a diagram of the human alimentary canal and associated organs.

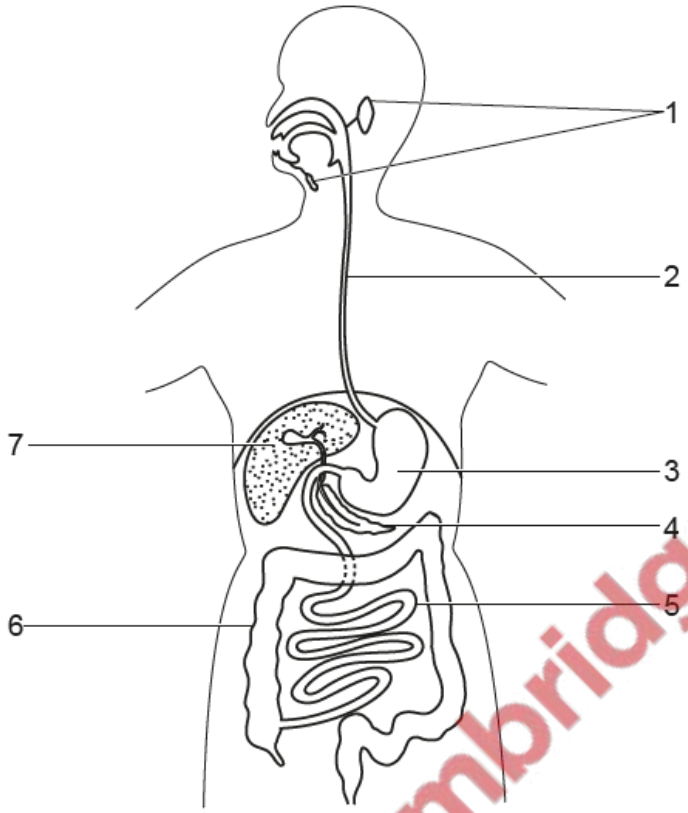


Fig. 2.1

(a) Table 2.1 shows enzymes, the organs that secrete these enzymes, their substrates and products.

Complete Table 2.1.

Table 2.1

enzyme	organ that secretes the enzyme	number identifying the organ on Fig. 2.1	substrate	product or products
amylase		1		
		3	protein	
lipase		4		
maltase				

[4]

(b) Explain the role of hydrochloric acid in the alimentary canal.

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(c) State a function of the region of the alimentary canal labelled 6 in Fig. 2.1.

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(d) Describe how food eaten by humans is reduced to smaller pieces **and** explain how this makes chemical digestion more efficient.

You may refer to Fig. 2.1 in your answer.

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[Total: 14]