Enzymes – 2023 June IGCSE Biology 0610

1. June/2023/Paper_0610/11/No.10

What is true of **all** enzymes?

	they are sugars	they are most effective at pH 7
A	✓	✓
B	✓	✗
C	✗	✓
D	✗	✗

key

✓ = yes

✗ = no

2. June/2023/Paper_0610/11/No.11

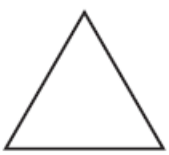
What is the substrate for enzyme X?

enzyme X

A

B

C



D

3. June/2023/Paper_0610/12/No.10

Which processes depend on the action of enzymes?

1 digestion

2 osmosis

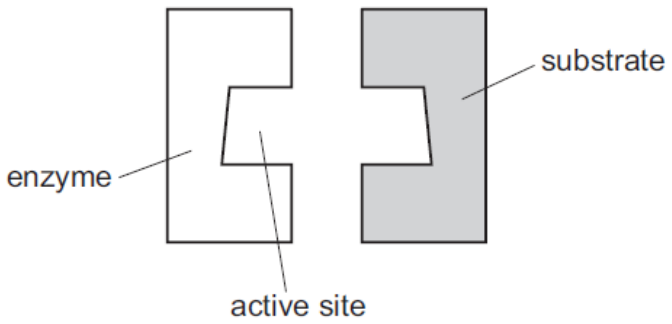
3 respiration

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

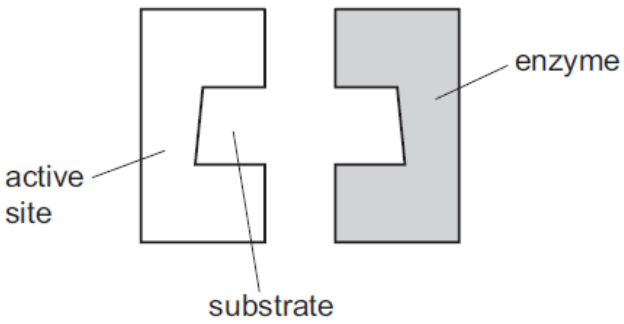
4. June/2023/Paper_0610/12/No.11

Which diagram of an enzyme, active site and substrate is correct?

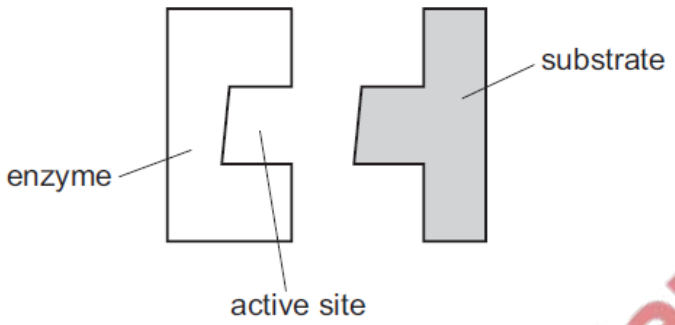
A



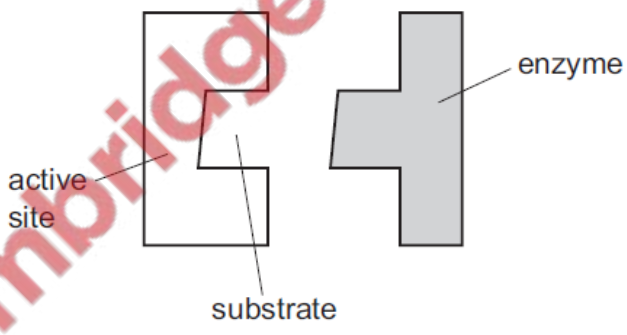
B



C



D



5. June/2023/Paper_0610/12/No.32

In a sperm cell, which structure contains enzymes that can digest the jelly coat of an egg cell?

A acrosome

B flagellum

C mitochondria

D nucleus

6. June/2023/Paper_0610/13/No.10

What is a characteristic of all catalysts?

A They are broken down in the reaction.

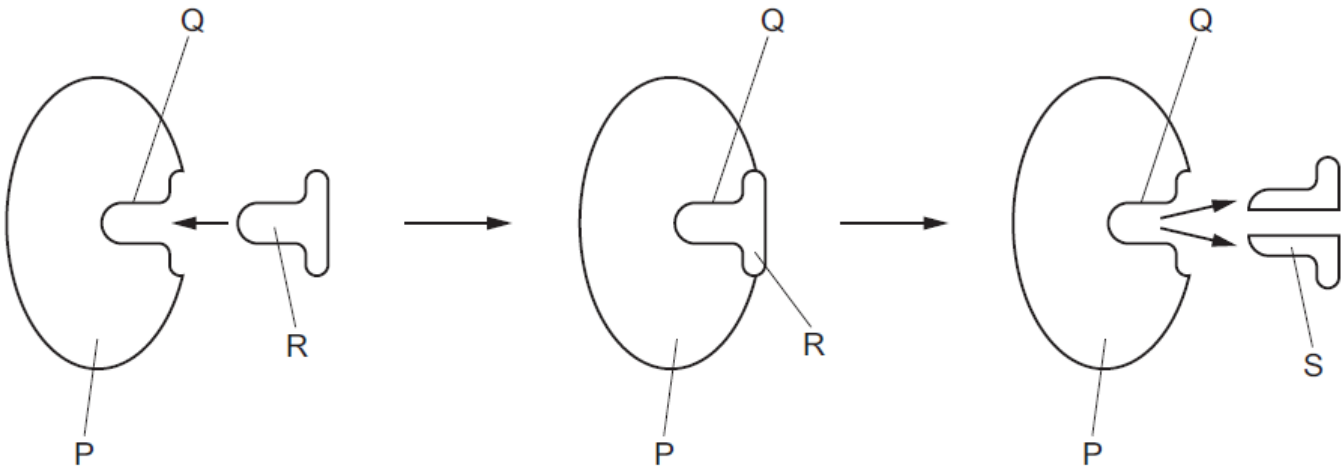
B They are made in the pancreas.

C They are **not** changed by the reaction.

D They do **not** change the rate of the reaction.

7. June/2023/Paper_0610/13/No.11

This sequence of diagrams shows how an enzyme works.



Which labelled part is the active site?

A P **B** Q **C** R **D** S

8. June/2023/Paper_0610/21/No.9

What is true of **all** enzymes?

	they are sugars	they are most effective at pH 7
A	✓	✓
B	✓	✗
C	✗	✓
D	✗	✗

key

✓ = yes

✗ = no

9. June/2023/Paper_0610/21/No.10

Which statement about human enzymes is correct when they are at temperatures above 80 °C?

A The enzyme molecules are denatured.

B The shape of the active site is stable.

C More enzyme-substrate complexes form.

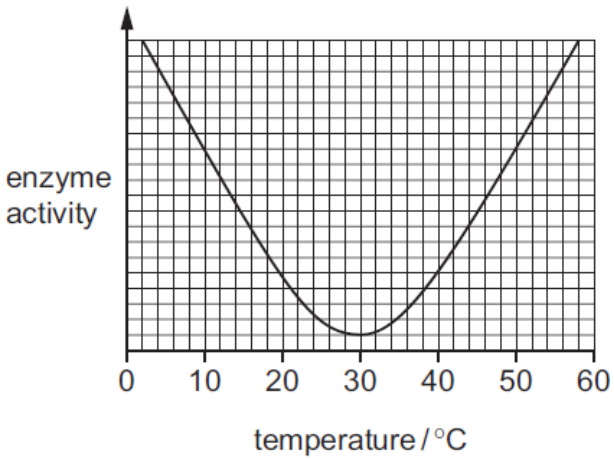
D More product is formed by the enzyme.

10. June/2023/Paper_0610/22/No.10

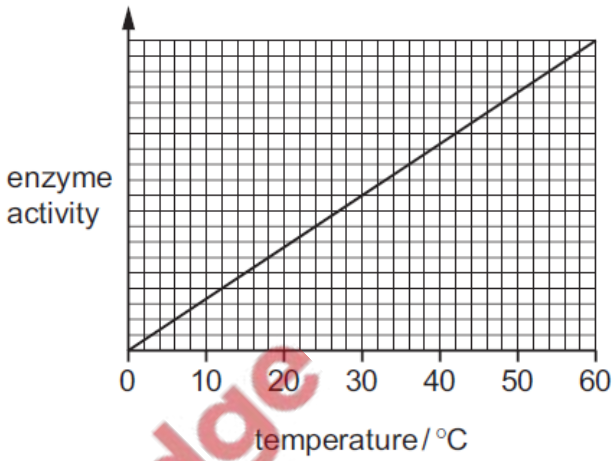
The graphs show the effect of temperature on enzyme activity. This enzyme has an optimum temperature of 30 °C.

Which graph shows the effect of temperature on the activity of this enzyme?

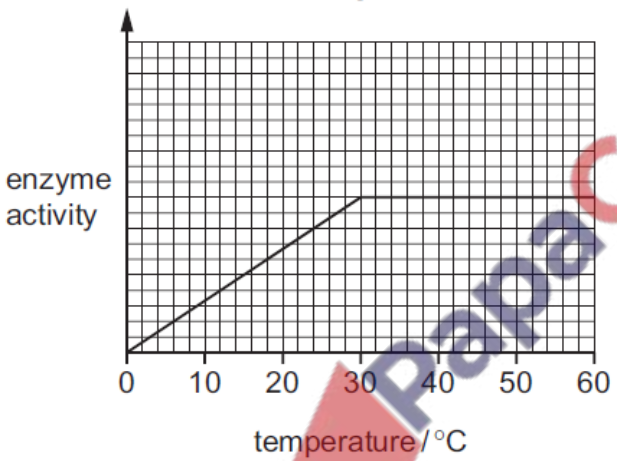
A



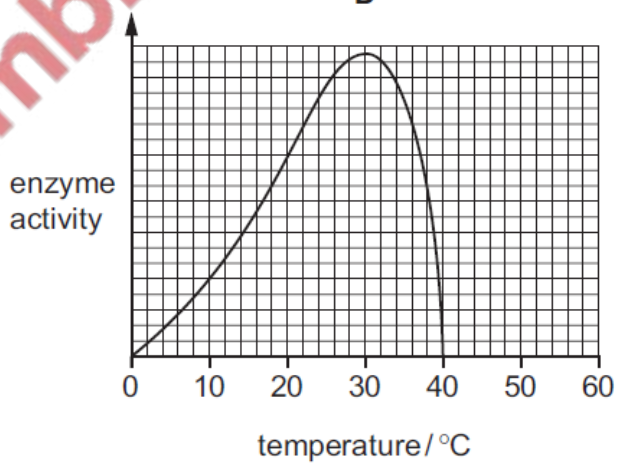
B



C



D



11. June/2023/Paper_0610/23/No.9

The statements are about enzymes.

1 Enzymes are catalysts.

2 Enzymes are proteins.

3 Enzymes are used up during chemical reactions.

Which statements are correct?

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

12. June/2023/Paper_0610/23/No.10

When the temperature increases, the rate of an enzyme-catalysed reaction increases until the optimum temperature is reached.

Which statement explains why the rate increases?

A The enzyme and substrate have more kinetic energy and collide less frequently.

B The enzyme and substrate have less kinetic energy and collide more frequently.

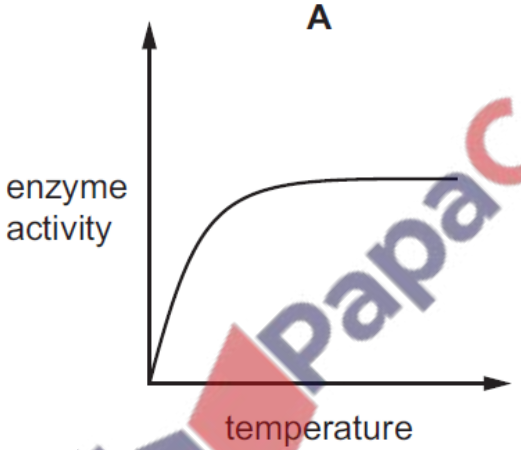
C The enzyme and substrate have more kinetic energy and collide more frequently.

D The enzyme and substrate have less kinetic energy and collide less frequently.

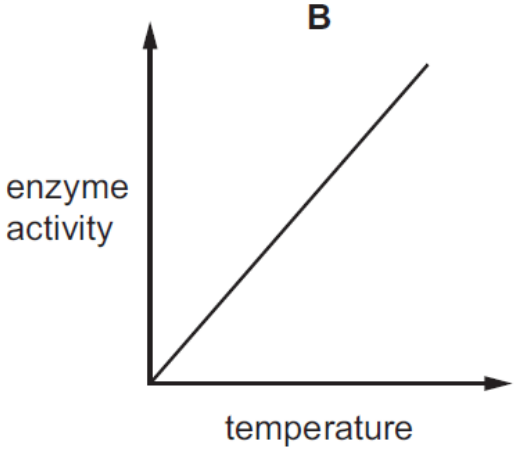
13. June/2023/Paper_0610/23/No.21

Which graph shows the effect of temperature on enzyme activity?

A



B



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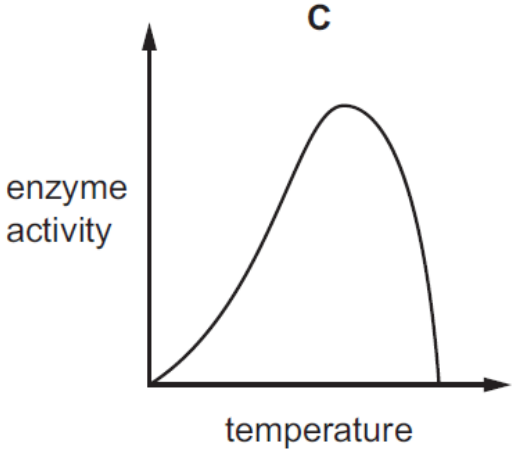
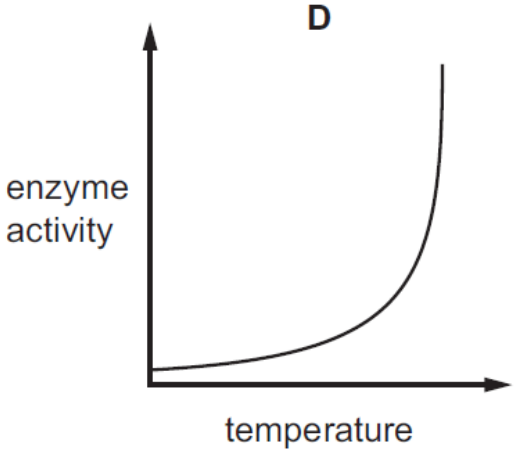


D



14. June/2023/Paper_0610/32/No.3

(a) Fig. 3.1 shows the action of an enzyme.

Fig. 3.1

On Fig. 3.1 use label lines and labels to identify:

- an enzyme
- a product
- a substrate.

[3]

(b) Describe what is meant by the term enzyme.

.....

.....

..... [2]

(c) The enzymes in biological washing powders speed up the removal of stains from clothing.

Some of these stains may contain fats.

(i) (Circle) the name of the enzyme that will remove fat stains.

amylase **lipase** **pectinase** **protease**

[1]

(ii) Explain why removing fat stains and protein stains from clothing requires a washing powder that contains more than one type of enzyme.

.....

.....

.....

.....

..... [2]

(d) An investigation was carried out to compare how fast a biological washing powder removed stains at different temperatures.

Fig. 3.2 shows the results of the investigation.

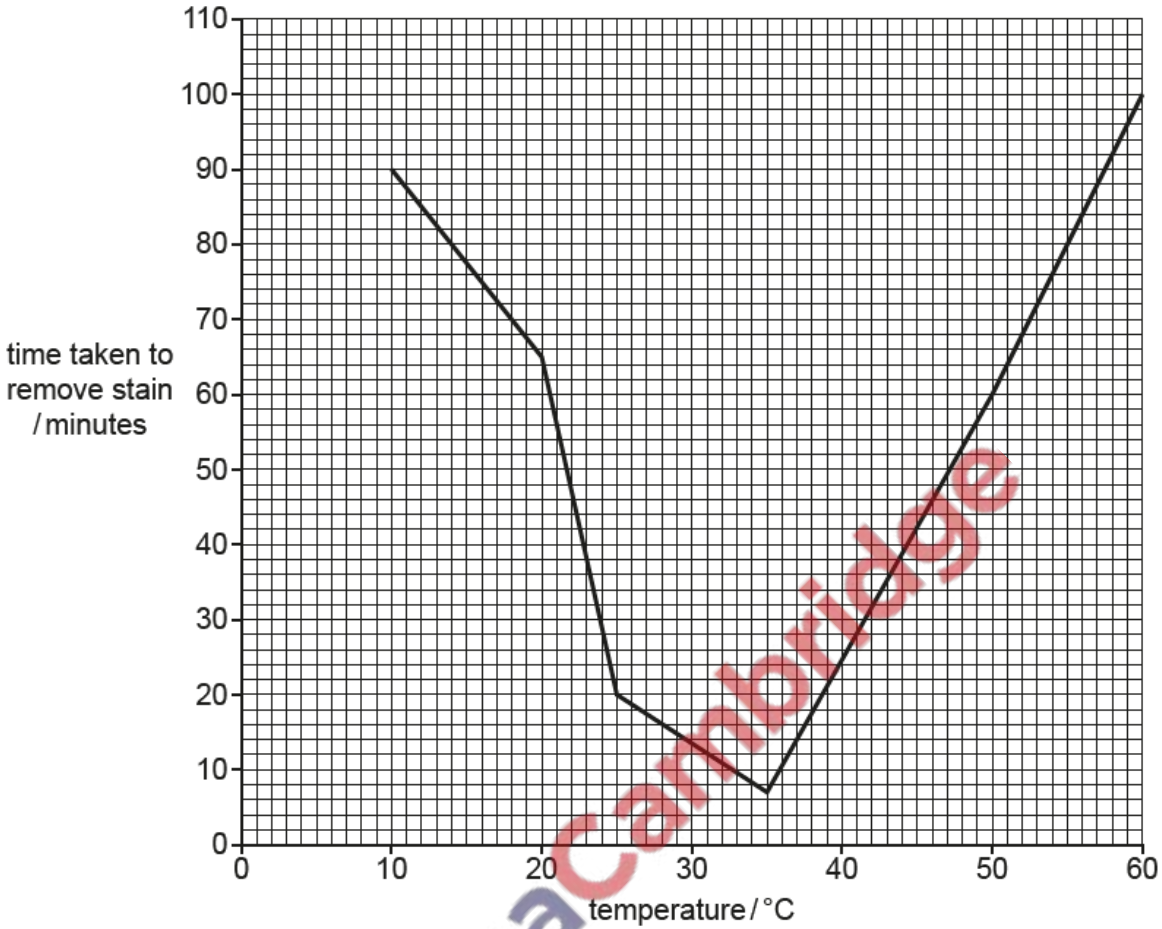


Fig. 3.2

Using the information in Fig. 3.2:

(i) State the optimum temperature for the washing powder.

..... °C [1]

(ii) State the time taken for the washing powder to remove the stain at 20 °C.

..... minutes [1]

(iii) Describe what happens to the enzymes in the biological washing powder between 40 °C and 60 °C.

.....

.....

.....

..... [2]

[Total: 12]

15. March/2023/Paper_ 0610/12/No.10
What are enzymes made of?

A fatty acids

B glycogen

C protein

D starch

16. March/2023/Paper_ 0610/12/No.11
What remains at the end of an enzyme-controlled reaction?

A enzymes and products

B enzymes and substrates

C enzymes only

D products only

17. March/2023/Paper_ 0610/22/No.9
What remains at the end of an enzyme-controlled reaction?

A enzymes and products

B enzymes and substrates

C enzymes only

D products only

18. March/2023/Paper_ 0610/22/No.10
Which feature explains the specificity of an enzyme?

A complementary shape of active site and substrate

B denaturation at certain pH values

C temperature change leading to change in enzyme activity

D varying frequency of effective collisions between enzyme and substrate