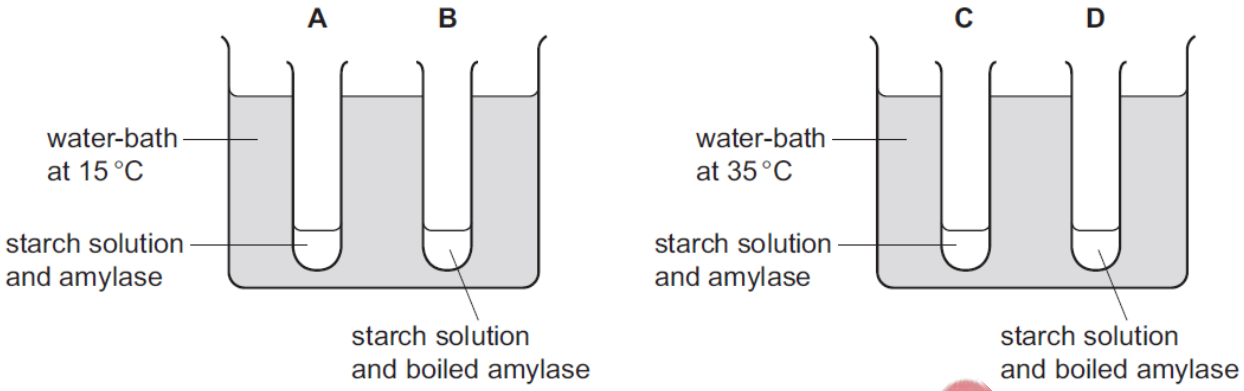
Enzymes – 2021 IGCSE 0610

1. Nov/2021/Paper_11/No.10

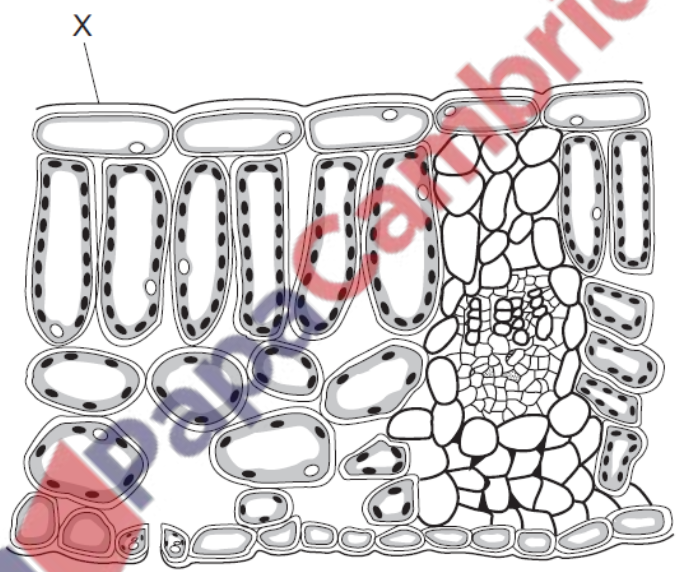
Four test-tubes were set up as shown in the diagram.

In which test-tube is the starch digested most quickly?



2. Nov/2021/Paper_12/No.10

The diagram shows a cross-section through a leaf.



What is the structure labelled X?

A cuticle

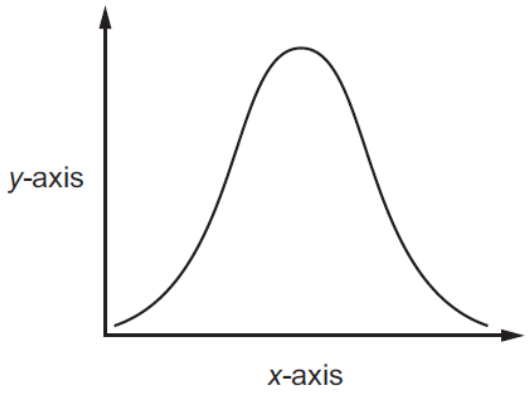
B palisade mesophyll

C spongy mesophyll

D stomata

3. Nov/2021/Paper_13/No.10

An experiment was carried out to investigate the effect of pH on enzyme action. The graph shows the results.

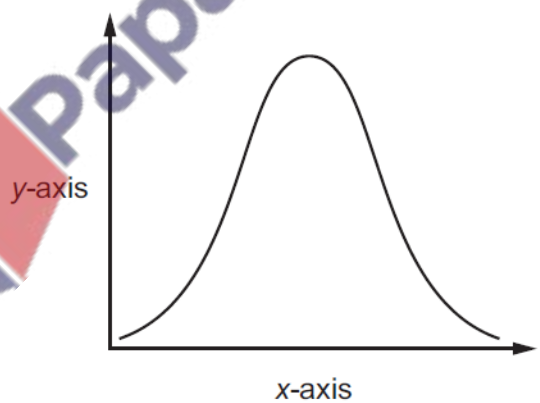


What are the labels for the *x*-axis and the *y*-axis?

	x-axis	*y*-axis
A	pH	rate of reaction
B	pH	time
C	rate of reaction	pH
D	time	pH

4. Nov/2021/Paper_21/No.10

An experiment was carried out to investigate the effect of pH on enzyme action. The graph shows the results.

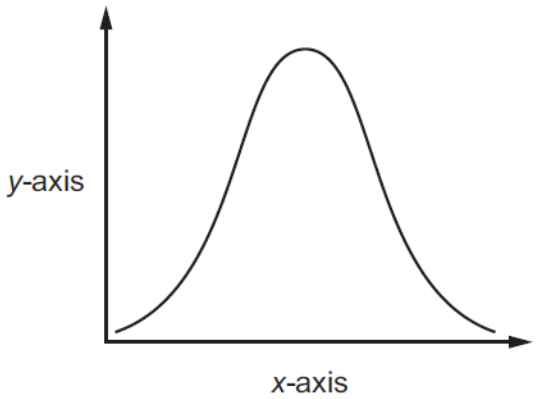


What are the labels for the *x*-axis and the *y*-axis?

	x-axis	*y*-axis
A	pH	rate of reaction
B	pH	time
C	rate of reaction	pH
D	time	pH

5. Nov/2021/Paper_22/No.10

An experiment was carried out to investigate the effect of pH on enzyme action. The graph shows the results.



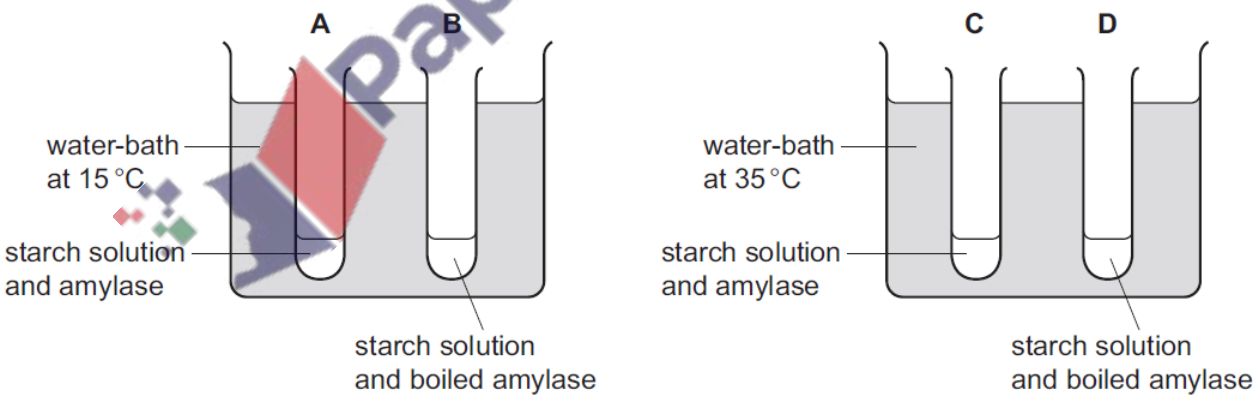
What are the labels for the *x*-axis and the *y*-axis?

	x-axis	*y*-axis
A	pH	rate of reaction
B	pH	time
C	rate of reaction	pH
D	time	pH

6. Nov/2021/Paper_22/No.11

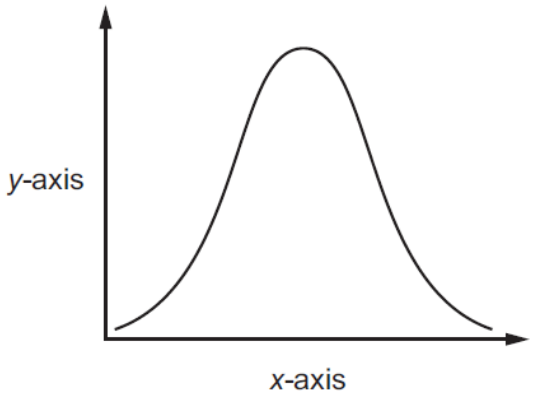
Four test-tubes were set up as shown in the diagram.

In which test-tube is the starch digested most quickly?



7. Nov/2021/Paper_23/No.10

An experiment was carried out to investigate the effect of pH on enzyme action. The graph shows the results.



What are the labels for the *x*-axis and the *y*-axis?

	x-axis	*y*-axis
A	pH	rate of reaction
B	pH	time
C	rate of reaction	pH
D	time	pH

8. Nov/2021/Paper_32/No.7

(a) A student investigated the effect of different concentrations of pectinase on the volume of apple juice produced.

1 cm^3 of pectinase solution was added to 5 g of mashed apples and the volume of apple juice produced was recorded. Six different concentrations of pectinase solution were tested.

The results are shown in Table 7.1.

Table 7.1

percentage concentration of pectinase solution	volume of apple juice produced / cm^3
0	4.4
5	5.0
10	5.4
15	5.8
20	
25	7.4

(i) Predict the volume of apple juice produced using pectinase solution with a concentration of 20%.

..... cm^3 [1]

(ii) Calculate the percentage increase in the volume of apple juice produced when the concentration of pectinase solution increased from 0% to 10%.

Space for working.

.....%
[2]

(b) Crops such as apples can be selectively bred.

The box on the left contains a sentence beginning.

The boxes on the right contain some sentence endings.

Draw **two** lines to make two correct sentences about selective breeding.

	involves one parent only.
	is carried out over many generations.
Selective breeding	is caused by mutation.
	is caused by the environment.
	requires human involvement.

[2]

(c) Some of the statements shown correctly describe events that happen during the process of natural selection.

Two of the statements are incorrect.

1	There is no variation within populations.
2	Many offspring are produced so there is more competition for resources.
3	Individuals that are not suited to the environment die.
4	Individuals that are better suited to the environment survive and breed.
5	Offspring pass their alleles to their parents.

State the numbers of the **two** incorrect statements.

..... and .....

[2]

(d) State the term that is defined as an inherited feature that helps an organism to survive and reproduce in its environment.

..... [1]

[Total: 8]

9. Nov/2021/Paper_41/No.3

Some washing powders contain enzymes.

(a) Fig. 3.1 shows a box of biological washing powder containing enzymes.

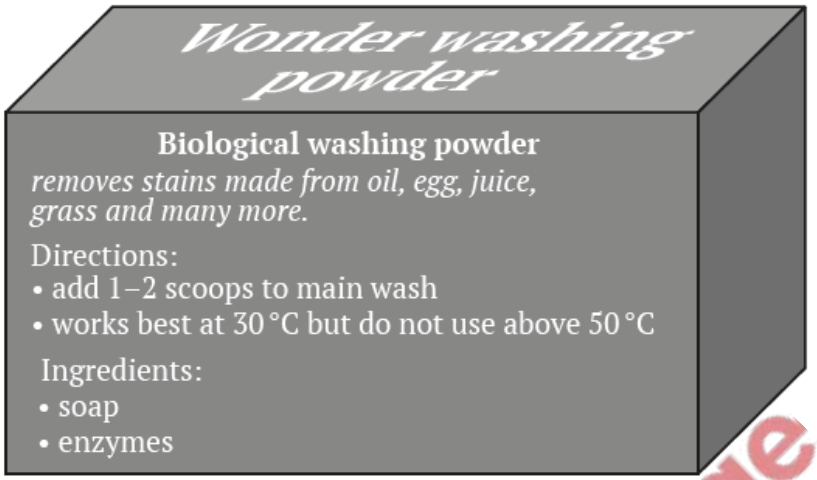


Fig. 3.1

(i) Eggs contain protein.

Describe how the biological washing powder removes egg stains.

.....

.....

.....

.....

.....

.....

..... [3]

(ii) Explain why the manufacturer states that the washing powder works best at 30 °C and should **not** be used above 50 °C.

.....

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.....

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.....

.....

.....

..... [4]

(b) Scientists used enzymes and bile in the early development of biological washing powders.

Outline the roles of bile in the body.

.....

.....

.....

.....

.....

.....

.....

.....

..... [4]

[Total: 11]

10. Nov/2021/Paper_42/No.6

Enzymes are catalysts.

(a) Define the term catalyst.

.....

.....

..... [2]

(b) Fig. 6.1 shows diagrams of three enzymes and eight different substrates.

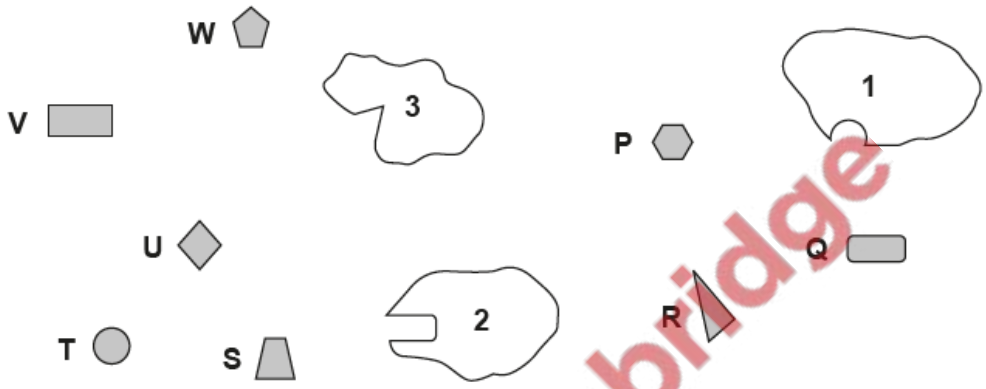

Fig. 6.1

(i) State the letter of the substrate that will be broken down by enzyme 1.

..... [1]

(ii) Explain, in terms of enzyme structure, the reason for your choice in **6(b)(i)**.

.....

.....

.....

.....

..... [2]

(c) Table 6.1 lists some enzymes and the reactions that they catalyse.

Complete Table 6.1.

Table 6.1

enzyme	reaction
maltase	breakdown of maltose to .....
.....	breakdown of proteins to amino acids
lipase	breakdown of fats to ..... and .....
.....	breakdown of lactose to simpler sugars
.....	insertion of a short length of DNA into a plasmid
restriction enzyme	.....

[6]

[Total: 11]