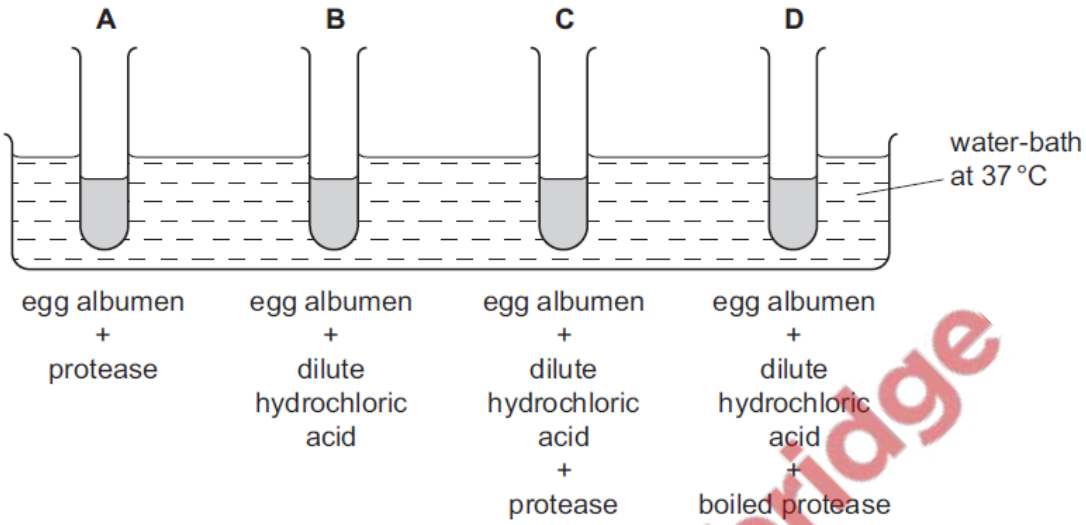
Enzymes – 2020 IGCSE 0610

1. March/2020/Paper_12/No.10

The diagram shows an experiment on the digestion of the protein in egg albumen by protease.

The protease was taken from a human stomach.

In which test-tube will the protein be digested most quickly?



2. March/2020/Paper_12/No.11

What is left at the end of an enzyme-controlled reaction?

A enzymes and products

B enzymes and substrates

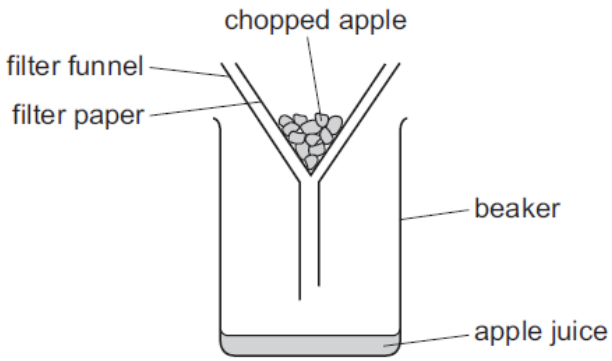
C enzymes only

D products only

3. March/2020/Paper_12/No.38

Chopped apple is placed into filter paper and a funnel as shown in the diagram.

Enzymes are added to increase the volume of apple juice released.



Which enzyme would release the highest volume of juice?

A amylase

B lipase

C pectinase

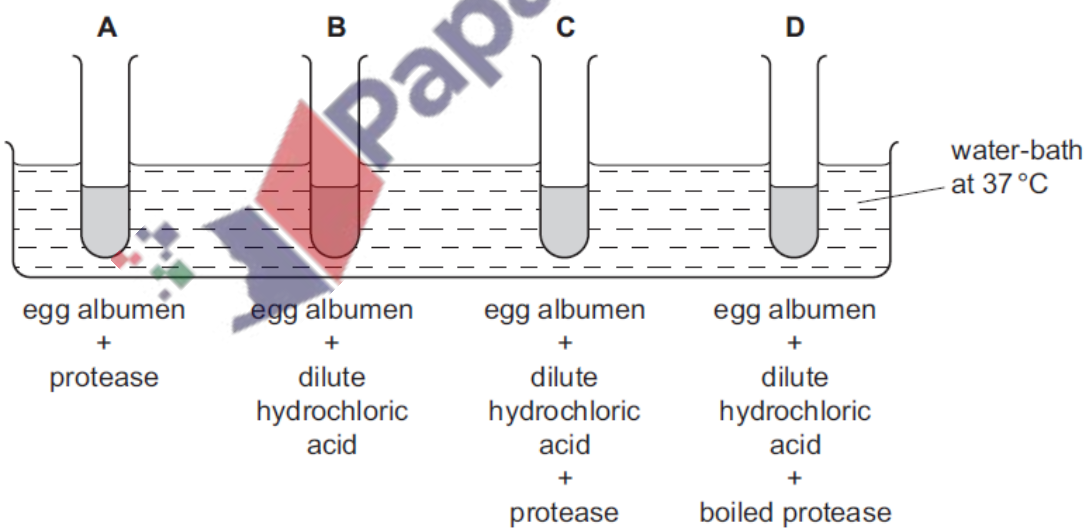
D protease

4. March/2020/Paper_22/No.10

The diagram shows an experiment on the digestion of the protein in egg albumen by protease.

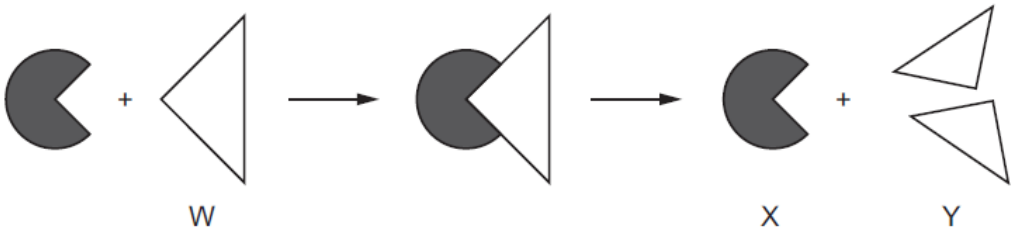
The protease was taken from a human stomach.

In which test-tube will the protein be digested most quickly?



5. March/2020/Paper_22/No.11

The diagram represents enzyme action.



What are parts W, X and Y in this chemical reaction?

	enzyme	product	substrate
A	W	X	Y
B	X	W	Y
C	X	Y	W
D	Y	W	X

6. June/2020/Paper_11/No.9

What is the definition of an enzyme?

A a carbohydrate that acts as a catalyst

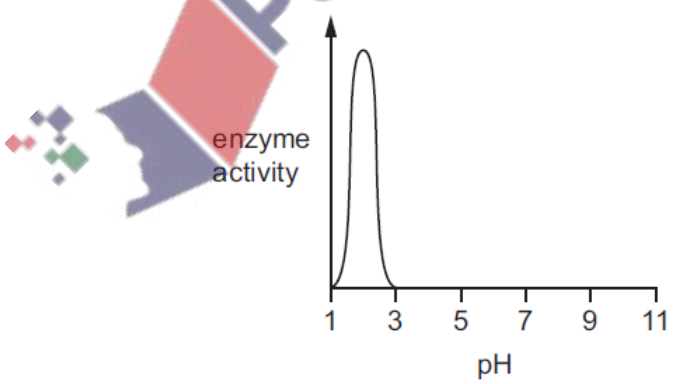
B a DNA molecule that acts as a catalyst

C a fat that acts as a catalyst

D a protein that acts as a catalyst

7. June/2020/Paper_12/No.12

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



In which part of the alimentary canal would this enzyme be **most** active?

A large intestine

B mouth

C small intestine

D stomach

8. June/2020/Paper_13/No.9

Which statement about enzyme-controlled reactions is correct?

A During the reaction, a substrate changes into a product.

B The enzyme is slowly broken down during the reaction.

C The higher the pH the faster the reaction.

D The product is gradually used up during the reaction.

9. June/2020/Paper_21/No.9

What is the definition of an enzyme?

A a carbohydrate that acts as a catalyst

B a DNA molecule that acts as a catalyst

C a fat that acts as a catalyst

D a protein that acts as a catalyst

10. June/2020/Paper_21/No.13

The activity of amylase is measured in four parts of the alimentary canal.

Which two parts have the most amylase activity?

A colon and duodenum

B colon and stomach

C mouth and duodenum

D stomach and mouth

11. June/2020/Paper_21/No.14

Biological washing powder can be used to remove stains on clothing.

Which enzymes will remove stains caused by starch, fat and protein?

	amylase	lipase	trypsin
A	✓	✗	✗
B	✓	✓	✓
C	✗	✗	✓
D	✗	✓	✓

key

✓ = removes stain

✗ = does not remove stain

12. June/2020/Paper_22/No.10

Enzymes function best at their optimum temperature.

Which statement describes the effect on an enzyme of increasing the temperature to the enzyme's optimum temperature?

A There are more frequent successful collisions.

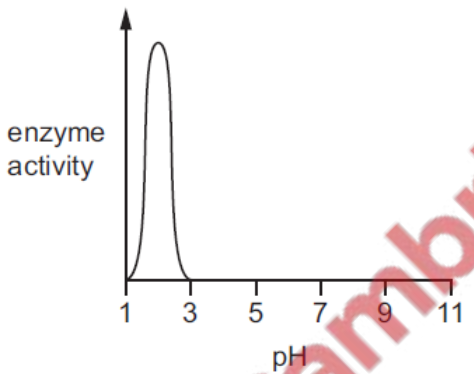
B The kinetic energy of the enzymes decreases.

C The enzymes begin to lose their complementary shape.

D The rate at which enzyme-substrate complexes form is reduced.

13. June/2020/Paper_22/No.13

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



In which part of the alimentary canal would this enzyme be **most** active?

A large intestine

B mouth

C small intestine

D stomach

14. June/2020/Paper_23/No.9

Which statement about enzyme-controlled reactions is correct?

A During the reaction, a substrate changes into a product.

B The enzyme is slowly broken down during the reaction.

C The higher the pH the faster the reaction.

D The product is gradually used up during the reaction.

15. June/2020/Paper_23/No.10

Increasing temperature above the optimum for the enzyme results in loss of enzyme activity.

How is this explained?

A less frequent collisions between the enzyme and the substrate

B reduced kinetic energy of the enzyme molecule

C substrate molecules move faster and effective collisions are less likely

D the shape of the active site is changed and the substrate will no longer fit into it

16. June/2020/Paper_41/No.2

Biological washing powders contain enzymes that break down food stains.

(a) Complete Table 2.1 by naming the enzymes that break down three substances in food stains and by stating the product or products.

Table 2.1

substance	enzyme	product(s)
starch		
fat		
protein		

[3]

Some students compared how effective biological and non-biological washing powders are at removing stains at temperatures between 10 °C and 60 °C.

- Pieces of stained cloth were washed using two different washing powders.
- The degree of stain removal was measured by using a light meter to record the percentage of light reflected from the cloth.
- A light meter gave a value of 100% when the cloth was completely clean.
- Any stain left on the cloth reduced the percentage of light reflected.

The results of the students' investigation are shown in Fig. 2.1.

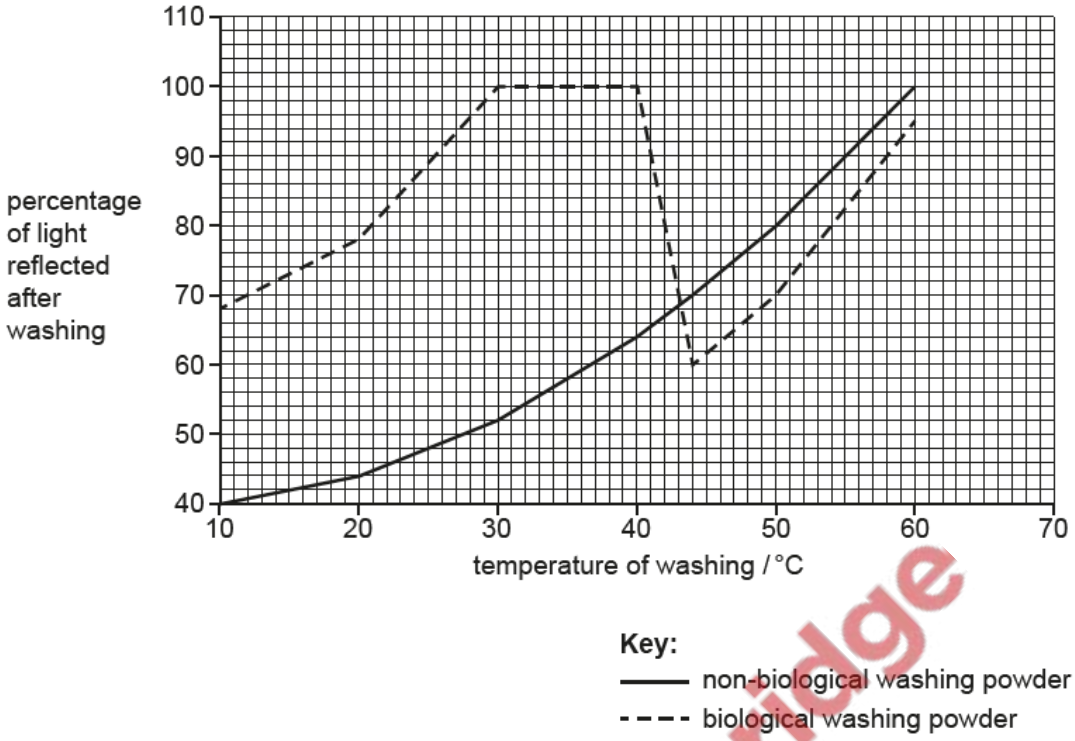


Fig. 2.1

(b) Compare the effectiveness of the two washing powders at removing stains.

Use the information in Fig. 2.1 in your answer.

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(c) The students suggested that the enzymes in the biological washing powder were denatured at high temperatures.

Explain why enzyme molecules do not function when they are denatured.

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(d) Forensic scientists often try to find DNA on items of stained clothing. The DNA can be used to identify individual people.

Suggest why DNA can be used to identify individual people.

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[Total: 11]