Sc!ence

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Class: ……

Date: …… **/** …… **/** ……

Revision of Secondary Two Biology – Digestion

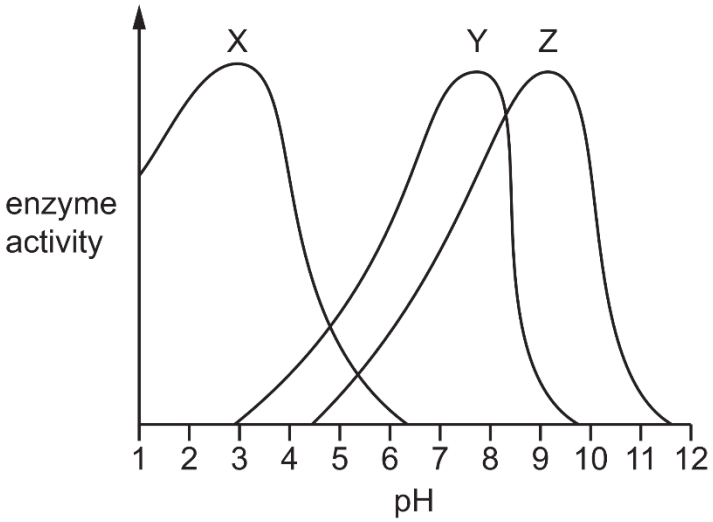
1. Which term is defined as the taking of substances into the body through the mouth?

A Absorption **B** Assimilation **C** Digestion **D** Ingestion

2. In which part of the body of a mammal does mechanical digestion occur?

A Gall bladder **B** Liver **C** Mouth **D** Pancreas

3. The graph shows the activity of three digestive enzymes at differing pH levels.



Which statement is correct?

A Enzymes X and Y are both active at pH 7.

B Enzymes X and Z are both active at pH 4.

C Enzymes Y and Z are both active at pH 4.

D Enzymes Y and Z are both active at pH 8.

4. Which is a large molecule built up from amino acids?

A Amylase **B** Glucose

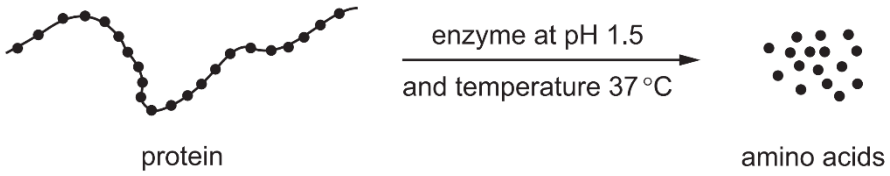
C Glycogen **D** Urea

5. Each part of the alimentary canal has the optimum pH for the enzymes that digest food there.

What is the optimum pH for an enzyme that works in the stomach?

A 2.0 **B** 6.5 – 7.5 **C** 7.5 – 8.5 **D** 12.0

6. The diagram shows the effect of an enzyme working in the human digestive system.



What would reduce the rate of production of amino acids?

A Removing the amino acids as they are formed.

B Increasing the amount of protein.

C Increasing the temperature to 37.1 °C.

D Increasing the pH to 7.5.

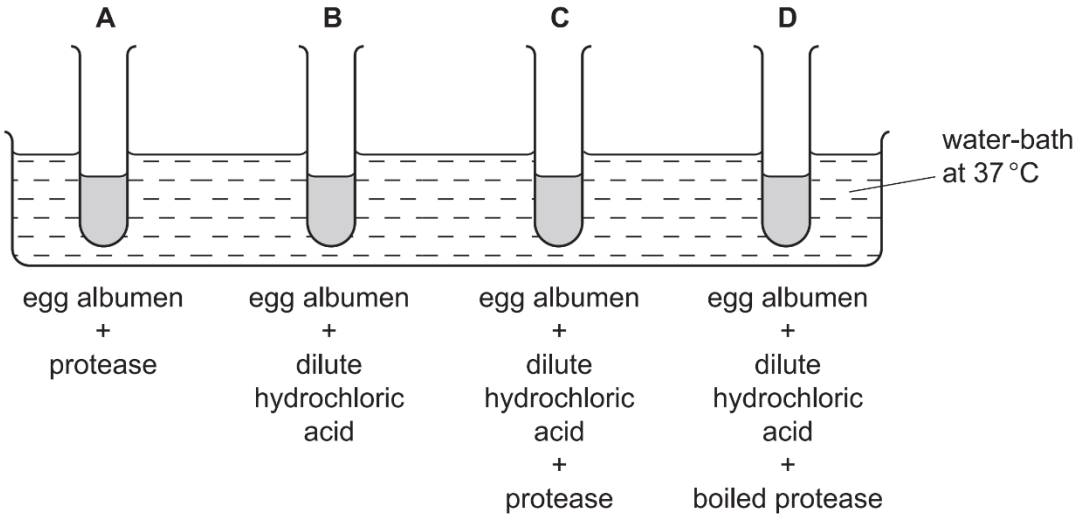
7. Which food group is chemically digested in the mouth, passes through the stomach and continues to be broken down by chemical digestion in the small intestine?

A Carbohydrates **B** Mineral salts

C Proteins **D** Vitamins

8. The diagram shows an experiment on the digestion of the protein in egg albumin by the enzyme protease. The protease was taken from the human stomach.

In which test tube will the protein be digested at the fastest rate?



9. Starch digestion occurs in the mouth cavity and in the duodenum but it stops in the stomach.

Why is this?

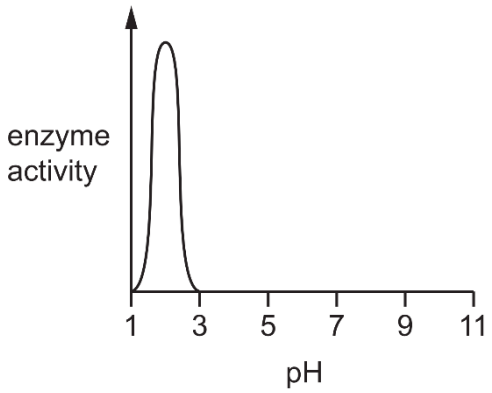
A All the starch has been digested before it reaches the stomach.

B Cells in the stomach do not produce amylase.

C The pH in the stomach alters the shape of the amylase and prevents it from working.

D The temperature in the stomach is too high for amylase to work.

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



In which part of the human digestive system would this enzyme be **most** effective?

A Large intestine **B** Mouth

C Small intestine **D** Stomach

11. Two samples of a human enzyme were used in an experiment. Before they were used

- Sample X was heated to 80 °C and then cooled to 37 °C.
- Sample Y was cooled to 0 °C and then heated to 37 °C.

How will this affect their activity?

A Sample X and sample Y are no longer active.

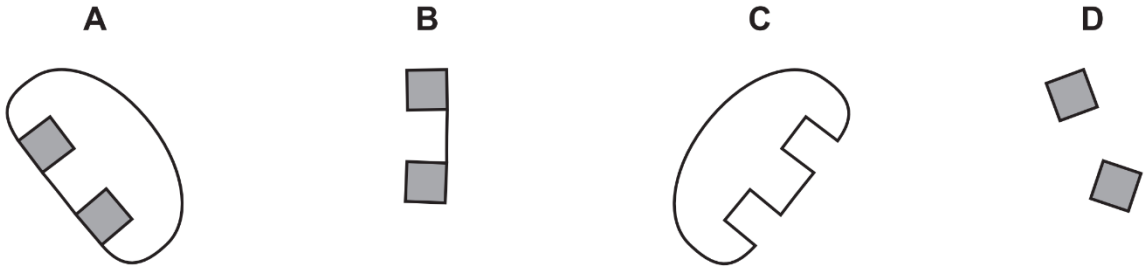
B Sample X and sample Y will be equally active.

C Sample X will be more active than sample Y.

D Sample Y will be more active than sample X.

12. The diagrams show molecules involved in the action of a digestive enzyme such as maltase.

Which is the substrate?



13. Many enzymes do not work at temperatures above 60 °C.

Which statement explains this?

A Product molecules are not made because the active site has changed shape.

B Product molecules change shape so they do not fit the active site.

C Substrate molecules are moving too fast.

D Substrate molecules are moving too slowly.

14. What is meant by chemical digestion?

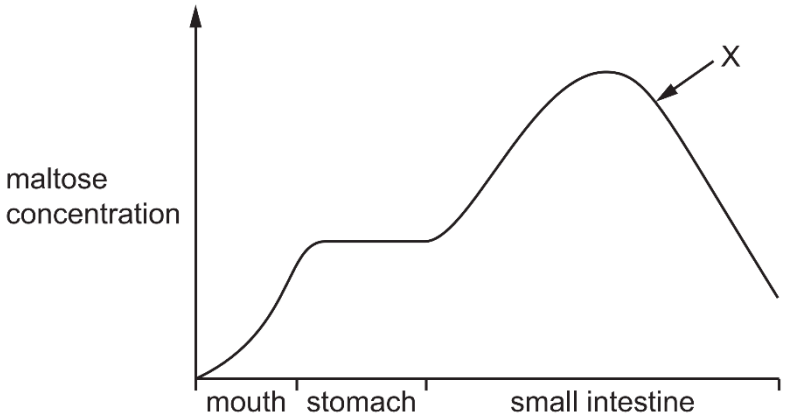
A Large insoluble molecules are broken down into small soluble molecules.

B Large soluble molecules are broken down into small insoluble molecules.

C Small insoluble molecules are built up into large soluble molecules.

D Small soluble molecules are built up into large insoluble molecules.

15. The graph shows the concentration of maltose in different parts of the alimentary canal.



What causes the change in concentration at X?

A Absorption of maltose.

B Action of amylase.

C Action of maltase.

D Assimilation of maltose.

16. In which form are digested proteins absorbed into the bloodstream?

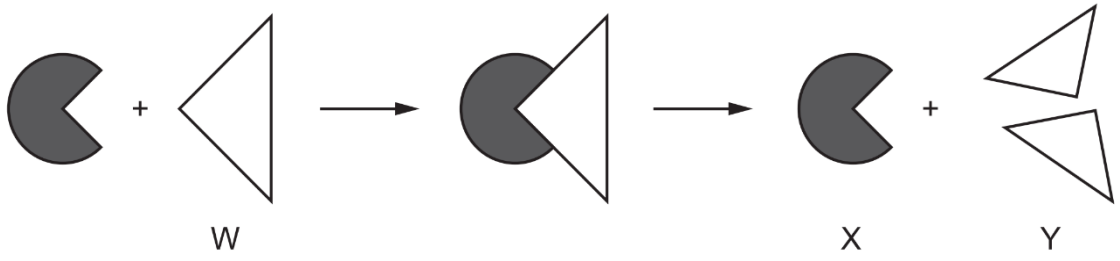
A Amino acids

B Fatty acids

C Glucose

D Glycerol

17. 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

18. 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.

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

Which two parts have the most amylase activity?

A Colon and small intestine.

B Colon and stomach.

C Mouth and small intestine.

D Stomach and mouth.

20. 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?

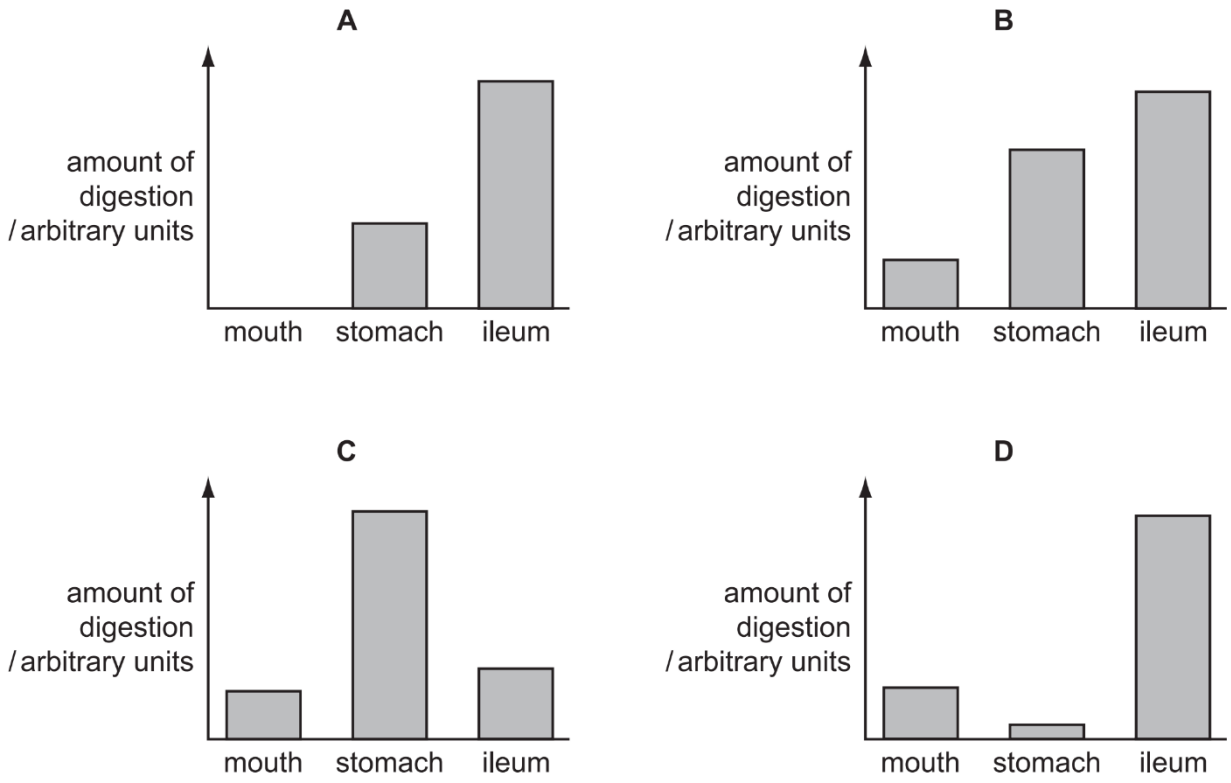
A There are more frequent successful collisions.

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.

21. Which bar chart represents the amount of starch digested in the mouth, stomach and ilium (small intestine) of a human?



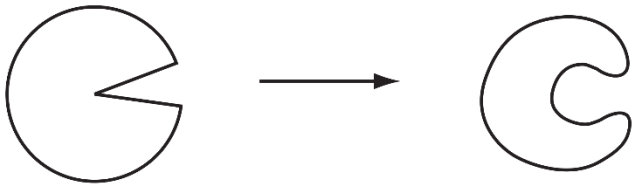
22. According to the lock and key hypothesis, which is the lock and which is the key for the enzyme lipase?

	key	lock
A	fatty acids	lipids
B	lipase	lipids
C	lipase	fatty acids
D	lipids	lipase

23. When a person eats some egg white, protein and water enter the stomach. Which substances are found leaving the stomach and leaving the small intestine?

	leaving the stomach	leaving the small intestine
A	amino acids and water	amino acids and water
B	fatty acids, glycerol and water	fatty acids, glycerol and water
C	protein and water	fatty acids and glycerol
D	protein, amino acids and water	water

24. The diagram represents how an enzyme molecule changes in shape.



What explains this change?

A It has been cooled to 5°C.

B It has been heated to 70°C.

C It has been placed in a concentrated salt solution.

D It has been placed in a dilute salt solution.

25. Which molecule is absorbed in the small intestine?

A Glycerol **B** Glycogen

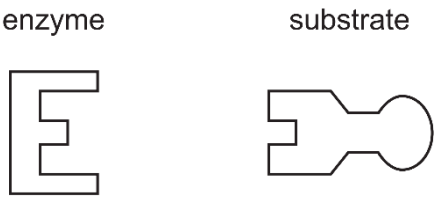
C Protein **D** Starch

26. What are the basic units from which starch is made?

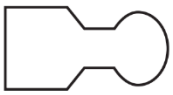
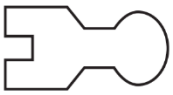
A Amino acids **B** Fatty acids

C Glucose **D** Glycerol

27. The diagram represents the 'lock and key' mechanism of an enzyme that works best at a pH value of 7.



Which diagram best represents the enzyme and its substrate at pH 13?

	enzyme	substrate
A		
B		
C		
D		

28. Which digestive processes takes place in the mouth?

	chemical digestion	mechanical digestion	dissolving of nutrients
A	✓	✓	✓
B	✓	✓	×
C	✓	×	✓
D	×	✓	✓

29. Which features make a villus well adapted for absorbing amino acids from the small intestine?

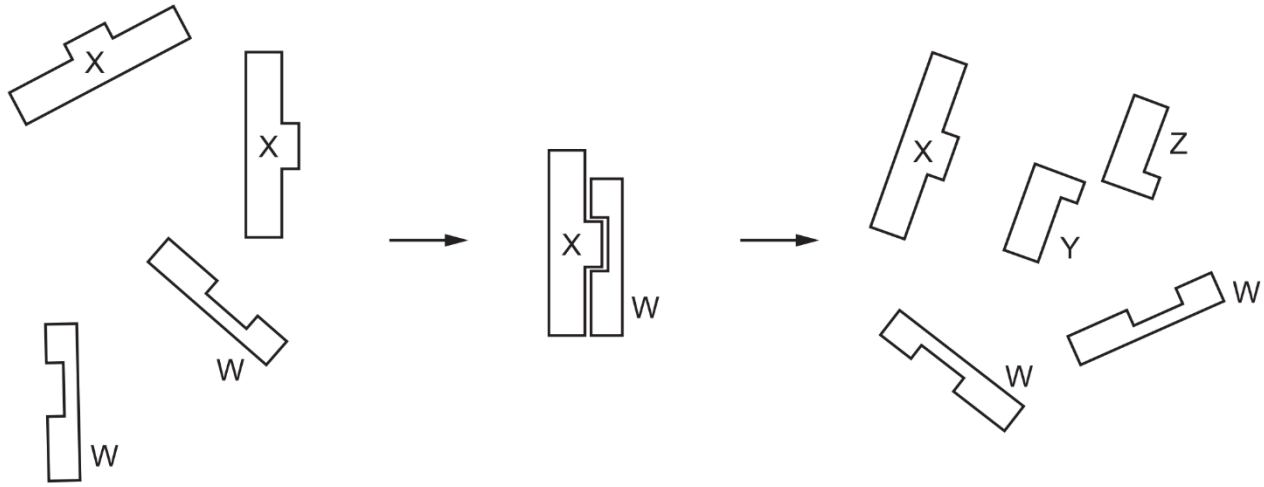
A Large surface area, poor blood supply, thick walls.

B Large surface area, good blood supply, thin walls.

C Small surface area, poor blood supply, thick walls.

D Small surface area, good blood supply, thin walls.

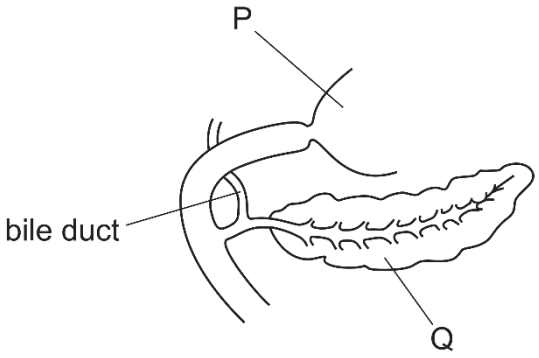
30. The diagram illustrates the 'lock and key' hypothesis of enzyme action.



What are the enzyme, product and substrate in this reaction?

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

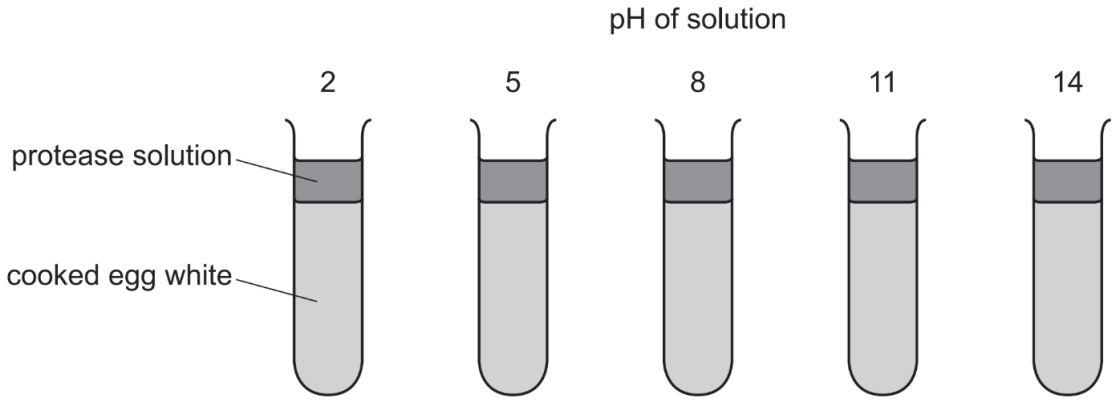
31. The diagram shows part of the alimentary canal and associated structures.



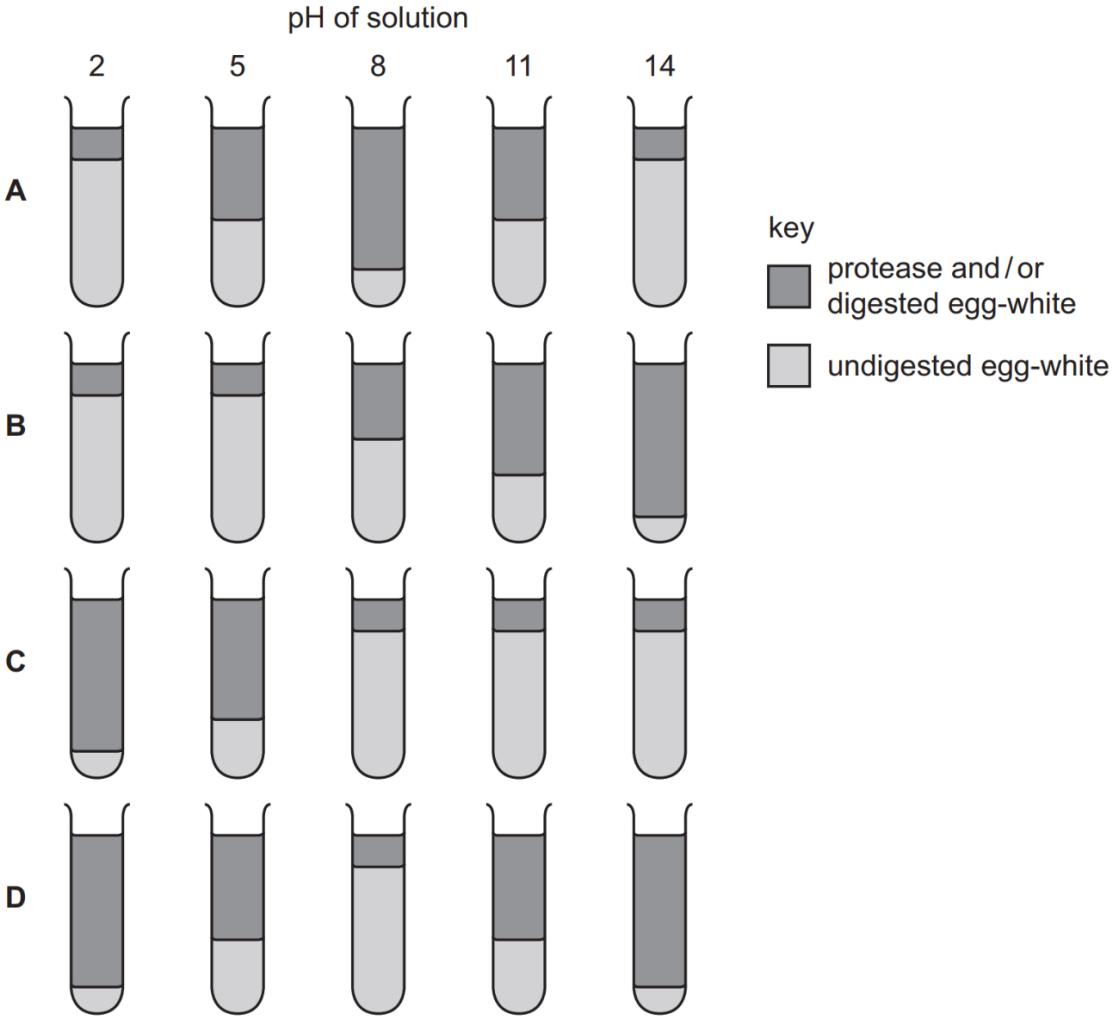
What are organs P and Q?

	P	Q
A	small intestine	gall bladder
B	small intestine	pancreas
C	stomach	gall bladder
D	stomach	pancreas

32. Five tubes containing cooked egg-white are set up as shown. Protease solutions of different pH are added to each tube.



Which diagram shows the results of this experiment for a protease from the stomach?



33. Which statement about chemical digestion in the human alimentary canal is correct?

A Digestion of carbohydrates is completed in the colon.

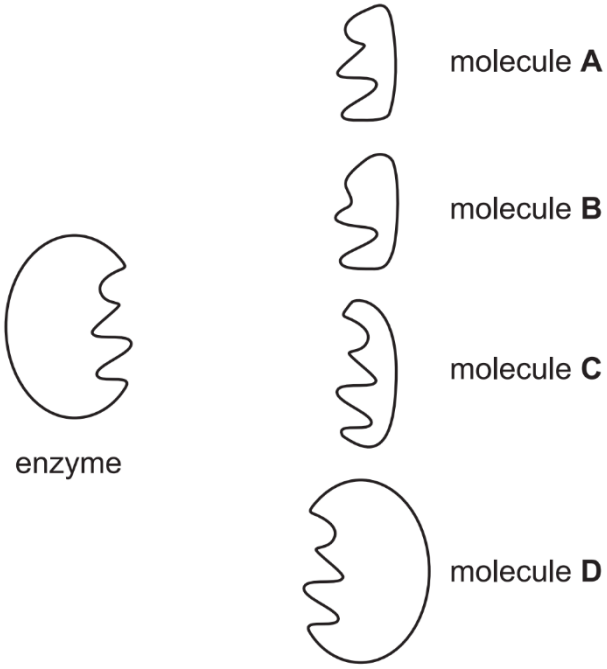
B Enzymes are secreted to break down cellulose in the small intestine.

C Protein digestion is completed in the small intestine.

D The stomach secretes enzymes to break down starch.

34. The diagram represents an enzyme and four molecules, **A**, **B**, **C** and **D**.

Which molecule is the substrate of this enzyme?



35. X and Y are the reactants in a chemical reaction for which E is the enzyme. The product is Z.

The first three stages in the reaction are shown.

$X + E \rightarrow XE$

$Y + XE \rightarrow XYE$

$XYE \rightarrow ZE$

What is the fourth, and final, stage of this reaction?

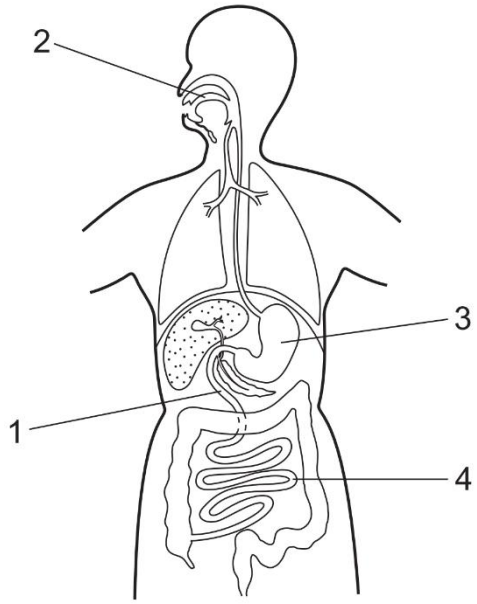
A $X + Y + E \rightarrow Z$

B $X + YE \rightarrow Z$

C $Y + ZE \rightarrow YZ + E$

D $ZE \rightarrow Z + E$

36. The diagram shows the alimentary canal and some associated organs.



Which row shows where amylase is released?

	1	2	3	4
A	✓	✓	✗	✗
B	✓	✗	✓	✗
C	✗	✓	✓	✗
D	✗	✓	✗	✓

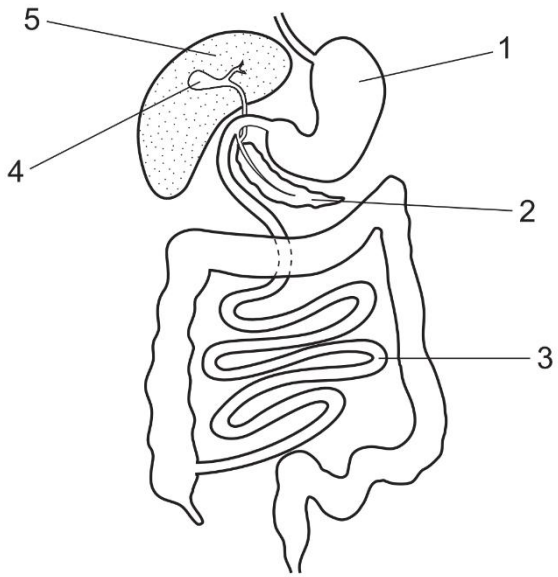
Key:
✓ = yes
✗ = no

37. The diagram represents an enzyme molecule.

What could be substrates for this enzyme?

A W only **B** W or X **C** Y only **D** Y or Z

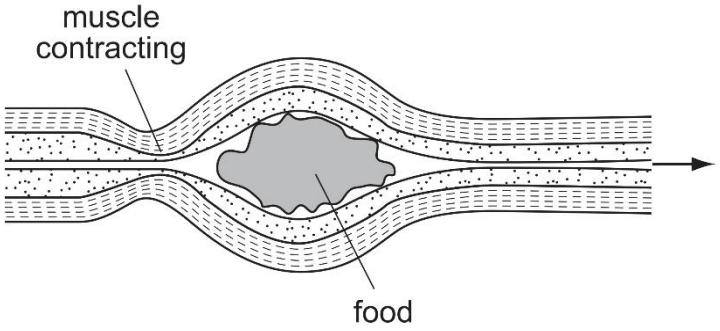
38. The diagram shows part of the alimentary canal and associated organs.



Which row correctly describes the functions of parts shown in the diagram?

	structure	function	structure	function
A	1	digests protein	3	absorbs products of digestion
B	2	emulsifies fats	3	absorbs amino acids & glucose
C	4	produces bile	5	makes digestive enzymes
D	4	stores digestive enzymes	2	makes digestive enzymes

39. The diagram shows some food moving through the digestive system of a mammal.



Which process is shown?

A Diffusion.

B Digestion.

C Ingestion.

D Peristalsis.

- To view the answers to this assignment, scan the QR code given below.

http://www.nygh.sg/lower_secondary_science/sec_two_science/sec_2_biology/multiple_choice_digestion_ans.pdf