KS5

A Level Biology Summer Work 2026

Answer the questions.

The following resources may help…

Miss Estruch Youtube: Miss Estruch - YouTube

Save my exams: Save My Exams AQA A Level Biology

CGP Books: Head Start to A-Level Biology

Section 1 – Biological Molecules

Proteins

1. What is the primary structure of a protein?
2. What type of bond holds together the secondary structure of a protein?

Carbohydrates

1. Name two monosaccharides.
2. Which disaccharide is composed of two molecules of glucose?
3. Name two polysaccharides.

Lipids

1. Which elements are fatty acids composed of?
2. What's the difference between saturated fatty acids and unsaturated fatty acids?
3. Whats the difference between triglycerides and phospholipids?

Enzymes 1

1. What is the function of enzymes?
2. What is activation energy?
3. What do digestive enzymes do?

Enzymes 2

1. Why are enzymes described as 'specific?
2. Explain why a denatured enzyme will not function.
3. Describe the effect of pH on enzyme activity.

Section 2 – Cell Structure

Eukaryotic and Prokaryotic Cells

1. Give an example of a prokaryotic cell.
2. Name four organelles that plant and animal cells both have.
3. What is the function of mitochondria?

Microscopes

1. Name three things visible with a light microscope in both animal and plant cells.
2. Which type of microscope must be used to show the detailed ultrastructure of a cell?
3. What is the image recorded by an electron microscope called?

Functions of nucleus, mitochondria and cell wall

4. Which organelle acts as the control centre of the cell?
5. In which organelle does aerobic respiration occur?
6. Describe the membranes of a mitochondrion.
7. What is the word equation for aerobic respiration?
8. Name the molecule used to provide energy for processes in the cell.
9. Name the molecule that is found in bundles in plant cell walls.

Cell membranes

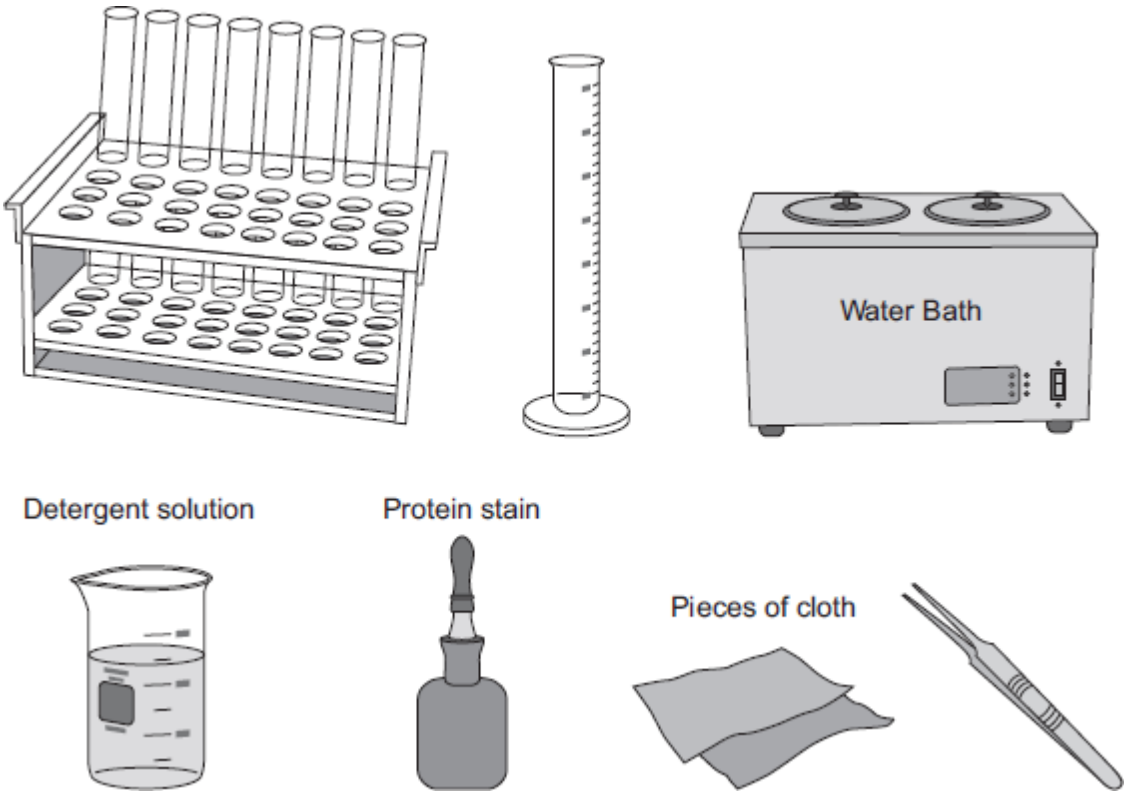
10. Name the two types of molecule that make up the cell membrane.
11. Give four ways substances can cross cell membranes.
12. What do you call the diffusion of water molecules through the cell membrane?
13. Give another term for the concentration of water molecules.
14. Name the two types of protein involved in facilitated diffusion.
15. Why does active transport require ATP?

Section 3 – Practical style questions

Q1.

Biological detergents contain protease enzymes.

(a) The drawings show some apparatus and materials.



1. In this question you will be assessed on using good English, organising information clearly and using specialist terms where appropriate.

Describe how you would use the apparatus and materials shown in the drawings to find the best temperature for removing stains from clothing.

You should include how you would make the investigation a fair test.

(6)

(b) In a similar investigation a student investigated the effect of pH on the time taken to remove a stain from pieces of cloth.

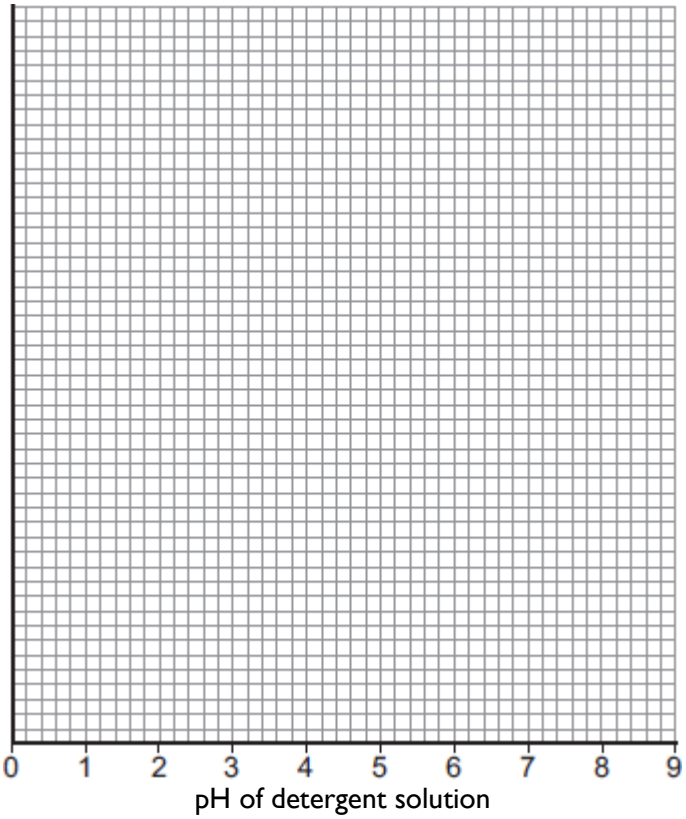
The table shows the student's results.

	pH of detergent solution								
	1	2	3	4	5	6	7	8	9
Time taken to remove stain in minutes	20	19	17	14	10	4	8	12	16

(i) On the graph paper below draw a graph to show the student's results.

- Add a suitable scale and label to the y axis.
- Plot the student's results.
- Draw a line of best fit.

2.



(4)

(ii) Which is the best pH for using the detergent?

pH_____

(1)

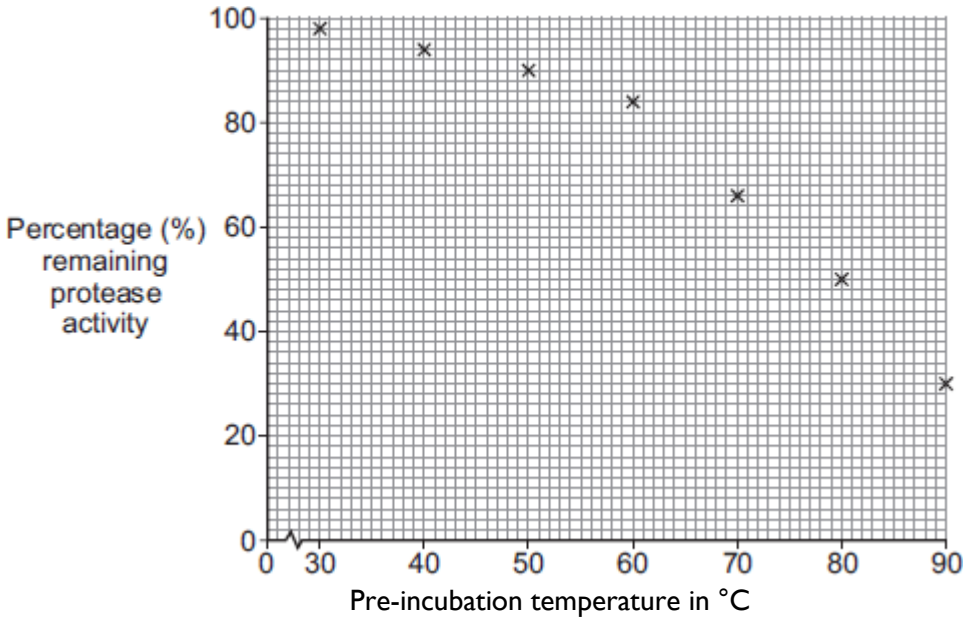
(c) Scientists investigated the stability of a protease enzyme. The protease enzyme was extracted from plants.

The scientists:

- pre-incubated samples of the enzyme at various temperatures for 30 minutes
- put each sample on ice for a further 10 minutes
- measured the percentage (%) remaining activity of the enzyme in each sample.

This was done by incubating each sample with protein at 37 °C for 6 hours.

The graph shows the scientists' results.



The scientists recommended that the enzyme could be used in detergents at a temperature of 60 °C.

Suggest why the scientists recommended a temperature of 60 °C.
Use information from the graph and your own scientific knowledge in your answer.

(3)

(Total 14 marks)