

Name of the Student: _____

Max. Marks : 17 Marks

Time : 17 Minutes

Q1.

Two enzymes, **P** and **Q**, are proteins with quaternary structure which catalyse the same reaction, but they have different amino acid sequences.

(a) Define the **quaternary structure** of a protein.

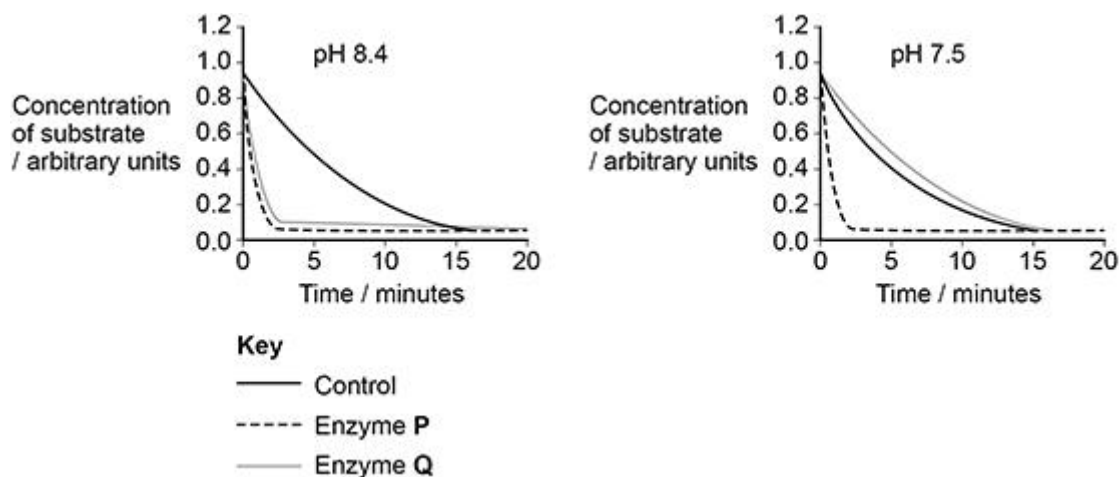
(1)

(b) Explain how two enzymes with different amino acid sequences can catalyse the same reaction.

(2)

Scientists investigated the effect of pH 8.4 and pH 7.5 on the activity of enzymes **P** and **Q**.

The figure below shows their results.



(c) Describe what the scientists should place in the control tubes in this investigation.

(3)

(d) Give **three** conclusions you can make from the figure above.

1

2

3

(3)

(Total 9 marks)

Q2.

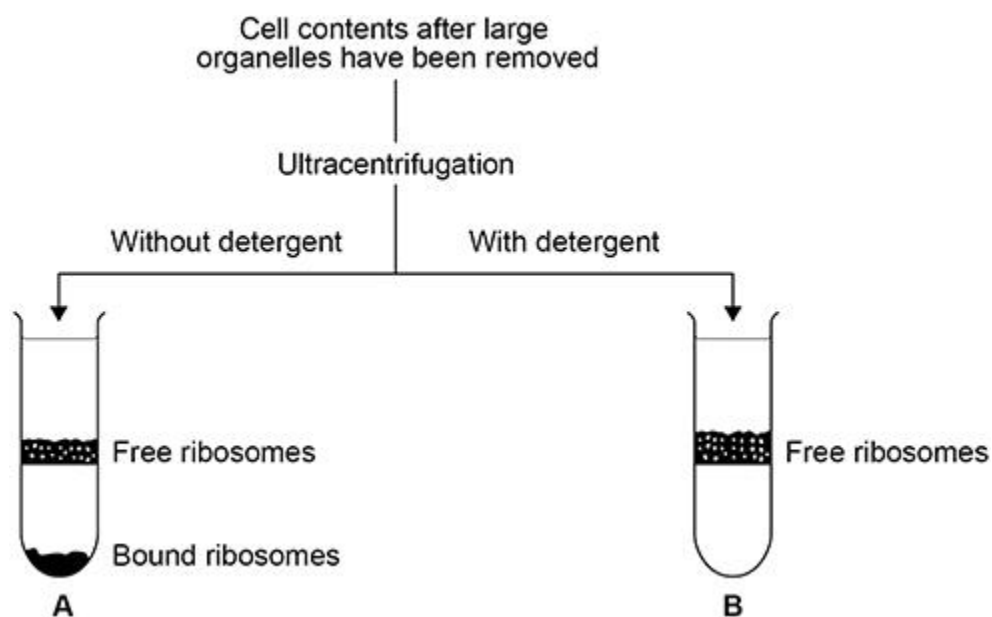
- (a) Complete the table below to give **three** differences between DNA molecules and tRNA molecules.

DNA molecules	tRNA molecules

(3)

Scientists investigated ribosomal RNA in liver cells.

The diagram below shows the method they used to isolate the ribosomes from the liver cells. The detergent dissolves lipids.



- (b) The scientists broke open the cells to produce a suspension of cell contents.

Describe how the scientists would remove large organelles from this suspension of cell contents.

(2)

(c) Explain the position of the bands of ribosomes in tubes **A** and **B** in the diagram above.

A _____

B _____

(3)

(Total 8 marks)