

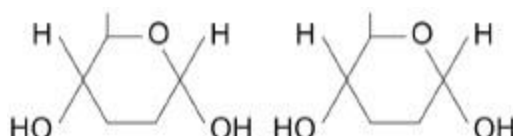
Name of the Student: _____

Max. Marks : 16 Marks

Time : 16 Minutes

Q1.

The diagram shows the structure of two α -glucose molecules.



- (a) On the diagram, draw a box around one chemical group in each glucose molecule used to form a glycosidic bond.

(1)

- (b) A precipitate is produced in a positive result for reducing sugar in a Benedict's test.
A precipitate is solid matter suspended in solution.

A student carried out the Benedict's test. Suggest a method, other than using a colorimeter, that this student could use to measure the **quantity** of reducing sugar in a solution.

(2)

In an investigation, a student wanted to identify the solutions in two beakers, **A** and **B**. She knew one beaker contained maltose solution and the other beaker contained glucose solution. Both solutions had the same concentration.

She did two separate biochemical tests on a sample from each beaker.

Test 1 – used Benedict’s solution to test for reducing sugar.

Test 2 – added the enzyme maltase, heated the mixture at 30 °C for 5 minutes, and then used Benedict’s solution to test for reducing sugar.

Maltose is hydrolysed by maltase.

The student’s results are shown in the table below.

	Colour of solution after testing with Benedict’s solution	
Beaker	Test 1	Test 2
A	red	red
B	red	dark red

- (c) Explain the results for beakers **A** and **B** in the table.

Beaker A _____

Beaker B _____

(2)

- (d) Use of a colorimeter in this investigation would improve the repeatability of the student’s results.

Give **one** reason why.

(1)

In **Test 1**, the student used a measuring cylinder to measure 15 cm³ of solution from a beaker. The measuring cylinder gives a volume with an uncertainty of ± 1 cm³. She used a graduated syringe to measure 5.0 cm³ of Benedict’s solution. The graduated syringe gives a volume with an uncertainty of ± 0.5 cm³. She mixed these volumes of liquid to do the biochemical test.

- (e) Calculate the percentage error for the measurements used to obtain a 20 cm³ mixture of the solution from the beaker and Benedict’s solution. Show your working.

(2)

Answer = _____ %
(Total 8 marks)

Q2.

- (a) Describe a biochemical test to confirm the presence of protein in a solution.

(2)

- (b) A dipeptide consists of two amino acids joined by a peptide bond. Dipeptides may differ in the type of amino acids they contain.

Describe **two other** ways in which all dipeptides are similar and one way in which they might differ.

Similarities

1 _____

2 _____

Difference _____

(3)

A solution contained a mixture of **three** different amino acids. A scientist passed an electric current through the solution to separate the amino acids.

She placed a drop of the mixture at one end of a piece of filter paper, attached an electrode to each end of the paper and switched on the current. She switched off the current after 20 minutes and stained the paper to show spots of the amino acids at new positions.

Her results are shown in the diagram.

