Biological Molecules, Food Tests and Enzymes: 10-minute Pack

Total Marks

EDEXCEL 4BI1 · Calculator allowed · about 10 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Large biological molecules are built from smaller units. Complete the table by naming the smaller units that make up each large molecule.

Large molecule	Smaller units it is made from
Starch	?
Protein	?
Lipid (triglyceride)	?

(Total for Question 1 is 3 marks)

2 Describe how a student can test a food sample for lipids using the ethanol emulsion test, and the result that shows lipid is present.

(Total for Question 2 is 3 marks)

3 Explain how the shape of an enzyme makes it specific to one substrate.

(Total for Question 3 is 4 marks)

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Mark scheme · Biological Molecules, Food Tests and Enzymes: 10-minute Pack

Question 1

starch: (many) glucose molecules / simple sugars	**B1**
protein: amino acids	**B1**
lipid: fatty acids and glycerol (both needed for the mark)	**B1**

Answer: Starch: glucose (simple sugars). Protein: amino acids. Lipid: fatty acids and glycerol.

Question 2

mix (crush or shake) the sample with ethanol so that any lipid dissolves	**B1**
pour the ethanol solution (liquid part) into water	**B1**
lipid present: a cloudy white emulsion forms	**B1**

Answer: Dissolve the sample in ethanol, pour the solution into water, and a cloudy white emulsion shows lipid.

Question 3

the enzyme has an active site (a region with a particular shape)	**B1**
the substrate has a shape that is complementary to (fits) the active site	**B1**
so only that substrate can bind, forming an enzyme-substrate complex	**B1**
the substrate is changed into products which leave the active site, and the enzyme is unchanged	**B1**

Answer: Only a substrate with a shape complementary to the active site binds, forming an enzyme-substrate complex; products leave and the enzyme can be reused.

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