The National Orthodox School Shmaisani

The National Orthodox School / Shmaisani

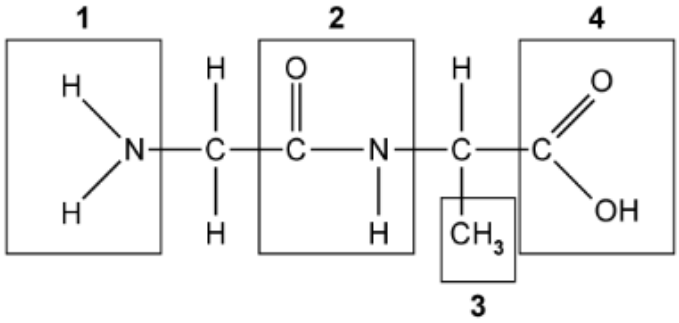
Subject: Biology **Quiz**

Name:

Date: **Grade 9 IB**

Question 1 :

The following diagram shows a dipeptide with various parts of the molecule numbered (**1** to **4**).



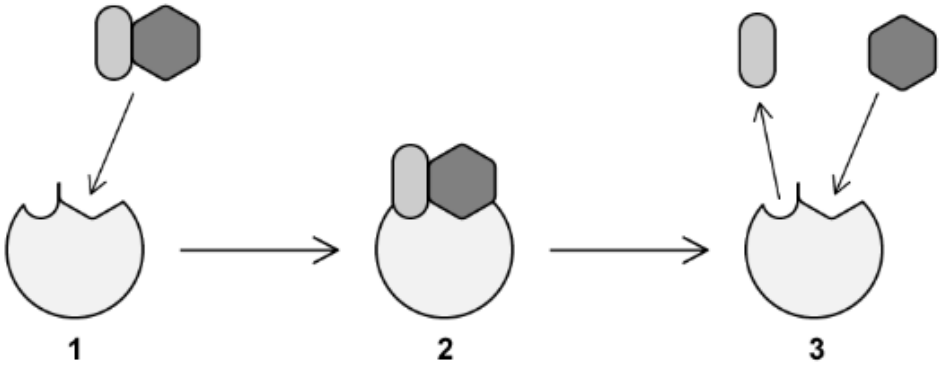
Which row of the table below correctly identifies each labelled part of this dipeptide?

	1	2	3	4
A.	Carboxyl group	Peptide bond	R-group	Amino group
B.	R-group	Amino group	Peptide bond	Carboxyl group
C.	Amino group	Carboxyl group	Peptide bond	R-group
D.	Amino group	Peptide bond	R-group	Carboxyl group

[1]

Question 2 :

The following diagram shows the three stages involved in enzyme catalysis.



Which of the following provides the most accurate description of the events occurring at each stage?

Which of the following provides the most accurate description of the events occurring at each stage?

	1	2	3
A.	The substrate collides with the enzyme	New bonds are forming within the substrate molecule	Chemical substances are released from the enzyme
B.	The substrate collides with the active site of the enzyme	The substrate is bound to the active site of the enzyme	The products are released from the active site
C.	The substrate binds to the enzyme	New chemical substances are formed while attached to the enzyme	These substances are released from the enzyme
D.	The substate collides with the active site of the enzyme	The substrate changes into different chemical substances	The products are released from the active site

[1]

Question 3 :

State the type of reaction that occurs when two amino acids bond with each other.

…….. condensation reaction ……[1]

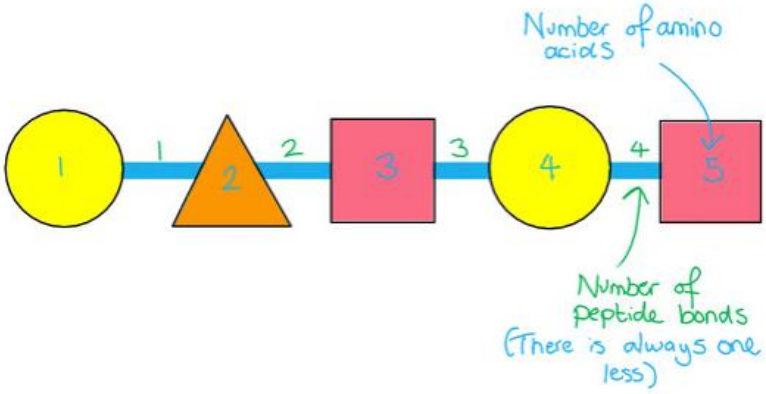
Question 4 :

In a polypeptide with 100 amino acids, how many peptide bonds exist within the chain?

…… 99 …… [1]

[Total: 1 mark]

This is a bit of a trick question because it can be very tempting to say 100. Use the graphic below to help you to visualise if you're confused.



Question 5 :

a. The action of enzymes is often explained in terms of the 'lock and key' model as shown in Fig. 3.2.

Fig. 3.2

Use the information in Fig. 3.2 to explain how enzymes work to break down nutrient materials, such as starch.

substrate, 'fits' into enzyme ;

active site (of enzyme);

shape is complementary ;

substrate is key, enzyme is lock ;

substrate / starch / nutrient, converted (into products) / AW ;

products (molecules) leave ;

enzyme / amylase, can work again on another substrate ;

b. Describe the process of protein denaturing.

This means that proteins will lose their secondary and tertiary structures; when these extreme conditions are implemented, the bonds within the protein structure break and this results in the altering of the shape of the protein. When the protein denatures, it returns to its primary structure. [4]