

DNA and the Production of Protein

3. (a) DNA is a double stranded molecule. The following diagram shows part of one strand. Complete the diagram to show the complementary strand.



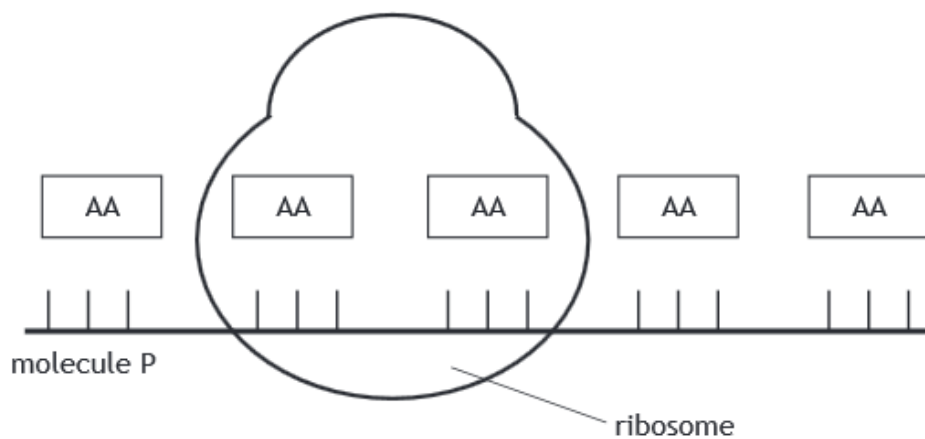
1

- (b) (i) DNA contains genetic material which controls the synthesis of chemicals made from amino acids.

Name the type of chemicals synthesised.

1

- (ii) The diagram below shows an example of one of these chemicals being synthesised.



Name molecule P and describe how it determines the sequence of amino acids, represented by AA, as shown in the diagram.

2

Molecule P _____

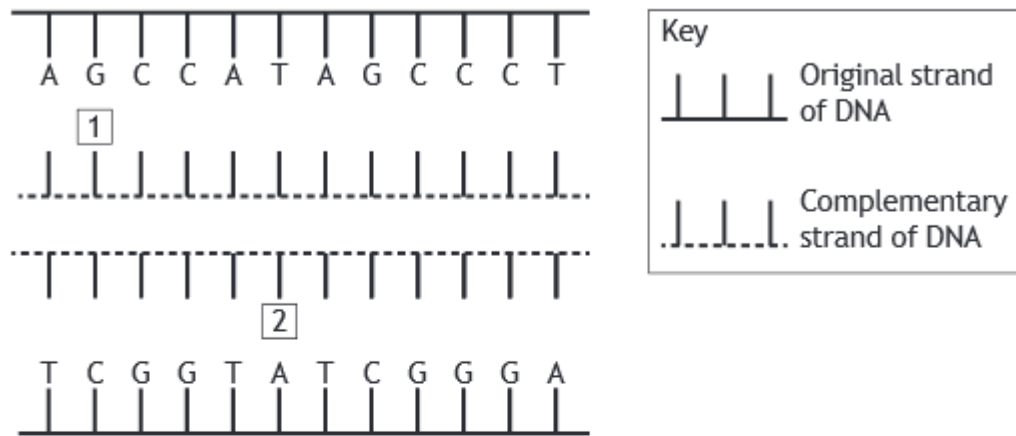
Description _____

4. Which of the following shows the correct DNA base pairing?

A	A - C	B	A - T
	C - G		C - G
	G - C		G - T
	T - A		T - A

C	A - G	D	A - T
	C - G		C - G
	G - A		G - C
	T - A		T - A

3. (a) Forensic scientists can take small quantities of DNA and use a process to make large quantities. Each DNA molecule is separated and used to make two complementary strands as shown below.



Give the full names of bases labelled 1 and 2 in the diagram above.

2

1 _____

2 _____

- (b) The bases in a strand of DNA make up the code for the production of proteins. The DNA for every individual person varies.

Describe the way in which this code differs from person to person.

1

- (c) Name the single stranded molecule which carries a complementary copy of the code from the DNA in the nucleus to the ribosome for protein synthesis.

1

4. Which of the following represents the sequence of events in the production of a protein from the genetic code?

- A DNA → amino acids → mRNA → protein
- B DNA → mRNA → amino acids → protein
- C mRNA → DNA → amino acids → protein
- D amino acids → DNA → mRNA → protein

3. The diagram represents part of a DNA molecule.



- (a) (i) Give the term which describes the shape of a DNA molecule as shown in the diagram. 1

- (ii) Describe the way in which the DNA strands are linked together. 1

- (b) Name the organelle in animal cells which stores the DNA. 1
