

# 2.5 Nucleic Acids: Structure & DNA Replication

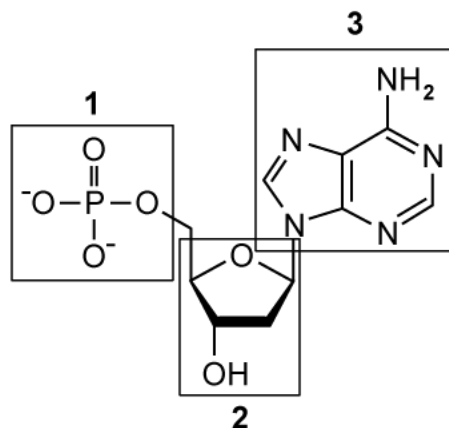
## Question Paper

Course	DP IB Biology
Section	2. Molecular Biology
Topic	2.5 Nucleic Acids: Structure & DNA Replication
Difficulty	Easy

**Time allowed:** 10  
**Score:** /5  
**Percentage:** /100

### Question 1

The following diagram represents the structure of a nucleotide.



Which row of the following table correctly identifies all the components of this nucleotide?

	1	2	3
A.	Adenine	Pentose sugar	Phosphate group
B.	Phosphate group	Adenine	Pentose sugar
C.	Pentose sugar	Phosphate group	Adenine
D.	Phosphate group	Pentose sugar	Adenine

[1 mark]

### Question 2

Which of the following statements **only** apply to RNA?

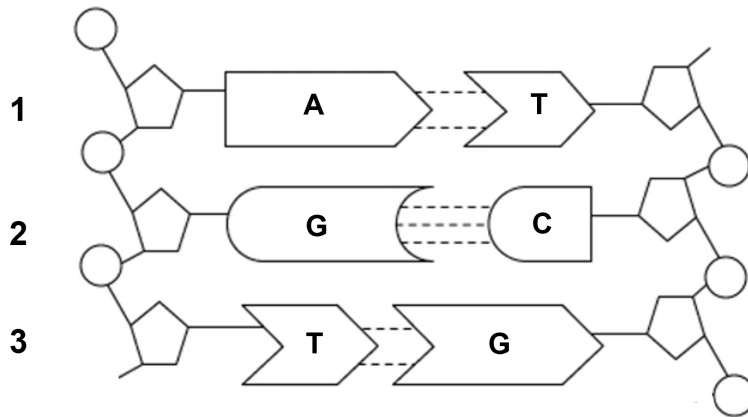
- I. The molecule is in the shape of a double helix, with antiparallel strands
- II. The four bases are adenine, cytosine, guanine, thymine
- III. Ribose is present as the pentose sugar in its nucleotides
- IV. It is a polymer formed by the linkage of many nucleotides

- A. I and III
- B. I, II and IV
- C. II, III and IV
- D. III and IV

[1 mark]

### Question 3

The following diagram shows a section of a DNA molecule.



Which of these base pairs are **not** correct?

- A. None
- B. 1
- C. 2
- D. 3

[1 mark]

### Question 4

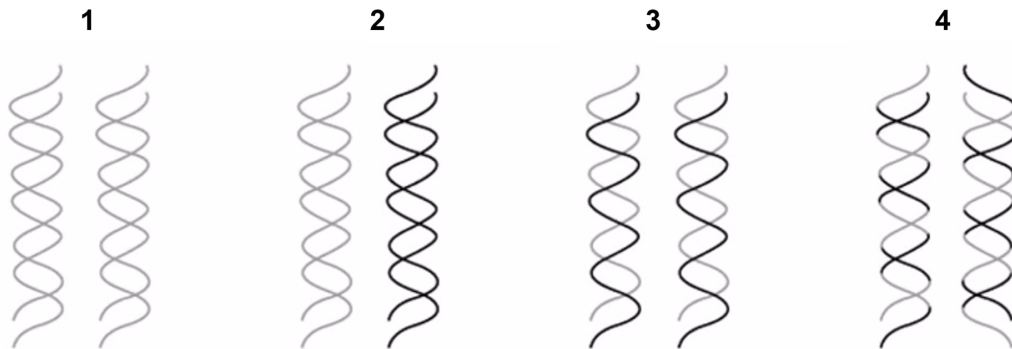
Which of the following is **not** a reason why molecular models helped Crick and Watson discover the structure of DNA?

- A. The DNA model could be adapted as their research delivered more information
- B. It reduced the amount of time spent on "trial and error" cycles and enabled them to come to a faster conclusion
- C. It represented their concepts of the three dimensional structure of DNA in order for further testing
- D. It enabled Crick and Watson to communicate their findings about the structure of DNA in a clear, visible way

[1 mark]

### Question 5

The diagram shows the outcomes from four different models of DNA replication after one nuclear division. The parent DNA is shown in black and the newly synthesised DNA is shown in grey.



Which diagram represents semi-conservative DNA replication?

- A. 1
- B. 2
- C. 3
- D. 4

[1 mark]