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2.6 Transcription & Translation

Easy

BIOLOGY

IB HL

2.6 Transcription & Translation

Question Paper

Course	DP IB Biology
Section	2. Molecular Biology
Topic	2.6 Transcription & Translation
Difficulty	Easy

Time allowed: 10

Score: /5

Percentage: /100

Question 1

Which of the following steps is **not** involved in the process of transcription?

A. The DNA double helix separates into single strands

B. DNA polymerase binds to one of the single strands and moves along the gene

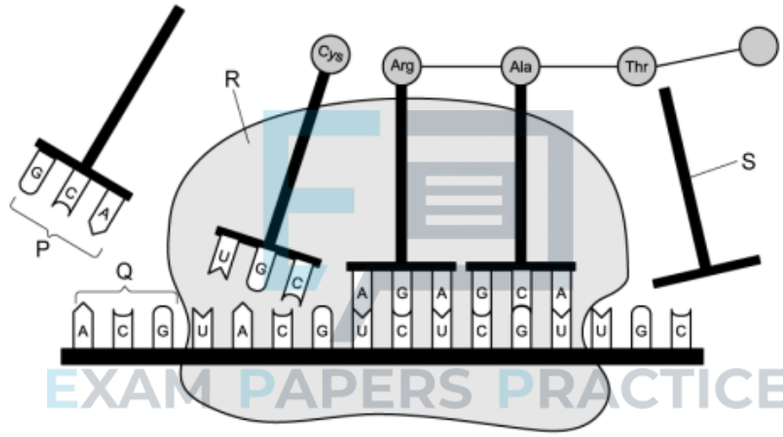
C. Free RNA nucleotides are joined together by covalent bonds

D. The RNA molecule detaches from the DNA template strand at the end of the gene

[1 mark]

Question 2

The following diagram shows the process of translation.



Which row of the following table correctly identifies the labelled components?

	P	Q	R	S
A.	anticodon	codon	ribosome	mRNA
B.	codon	anticodon	ribosome	tRNA
C.	anticodon	codon	ribosome	tRNA
D.	codon	anticodon	mRNA	ribosome

[1 mark]

Question 3

In a genetic engineering experiment, a piece of double-stranded DNA containing 18 000 nucleotides coding for a specific polypeptide is transcribed and translated.

What is the total number of amino acids in this polypeptide?

A. 3 000

B. 6 000

C. 9 000

D. 18 000

[1 mark]

Question 4

A section of a DNA molecule contains the following base sequences:

ATA CCT GCA

Which of the following would represent the base sequences of the codons on the mRNA molecule after transcription?

A. ATA CCT GCA

B. AUA CCU GCA

C. TAT GGA CGT

D. UAU GGA CGU

[1 mark]

Question 5

Which one of the following would **not** be an advantage of using bacteria to produce human insulin?

A. Some bacteria can survive at very high temperatures, which will make the insulin less likely to denature

B. The insulin produced by the genetically modified bacteria is identical to human insulin

C. Bacteria uses the same genetic code as humans which makes gene transfer possible between the species

D. Bacteria can produce large quantities of insulin in a relatively short amount of time

[1 mark]