Centre Number

Student Number

10 February 2026

2026 **PRACTICE SET**

Biology

General Instructions

- Reading time – 5 minutes
- Working time – 35 minutes
- Write using black pen
- Draw diagrams using pencil
- Calculators approved by NESA may be used

Total Marks

Section I – 10 marks (pages 1-5)
- Attempt Questions 1-10
- Allow about 15 minutes for this section

Section II – 19 marks (pages 6-10)
- Attempt Questions 11-15
- Allow about 25 minutes for this section

Section 1

10 marks

Attempt Questions 1-10

Allow about 15 minutes for this section

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1 Before a somatic cell enters mitosis, its DNA must be replicated. The primary reason for this replication is to ensure that

A. Each daughter cell receives half the genetic information
B. Each daughter cell receives an identical and complete set of DNA
C. Each daughter cell can increase genetic variation
D. Each daughter cell's chromosome number is reduced during division

2 Which of the following statements about DNA replication and cell division is incorrect?

A. DNA replication occurs before cell division
B. DNA replication allows genetic information to be preserved
C. DNA replication produces RNA used to make proteins
D. DNA replication is essential for mitosis in somatic cells

3 Below are a gene and a polypeptide:

Gene	Polypeptide
	

A gene ultimately results in the production of a polypeptide because:

A. DNA directly assembles amino acids in the nucleus

B. DNA is translated into protein by ribosomes

C. DNA is transcribed into mRNA, which is then translated into an amino acid sequence

D. RNA replicates itself to form proteins

4 A molecule has the following features:

Feature	Molecule
Number of strands	One
Base composition	Adenine, Uracil, Cytosine, Guanine
Can leave the nucleus?	Yes

This molecule is most likely,

A. DNA

B. mRNA

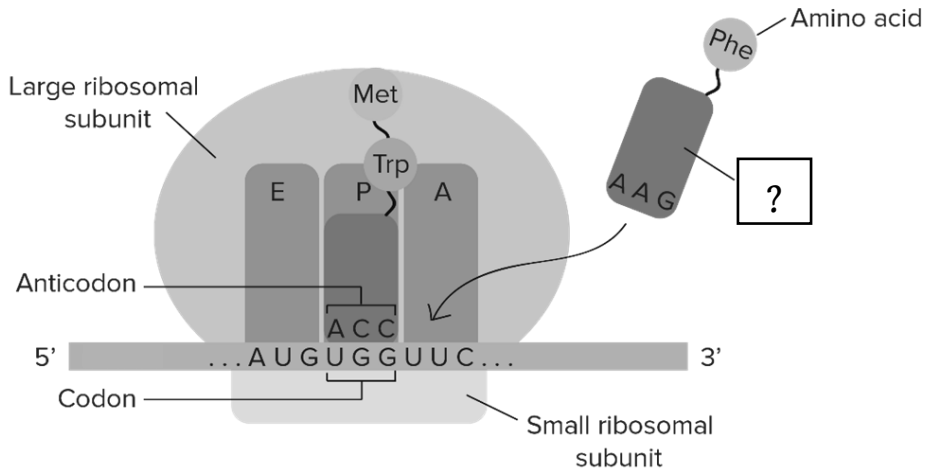
C. A chromosome

D. A replicated gene

5 Which row correctly matches the process with its location and outcome?

A. Transcription — cytoplasm — amino acid sequence
B. Translation — nucleus — mRNA molecule
C. Transcription — nucleus — mRNA molecule
D. Translation — nucleus — polypeptide

6 During translation, a ribosome reads an mRNA sequence while another molecule delivers amino acids in the correct order.

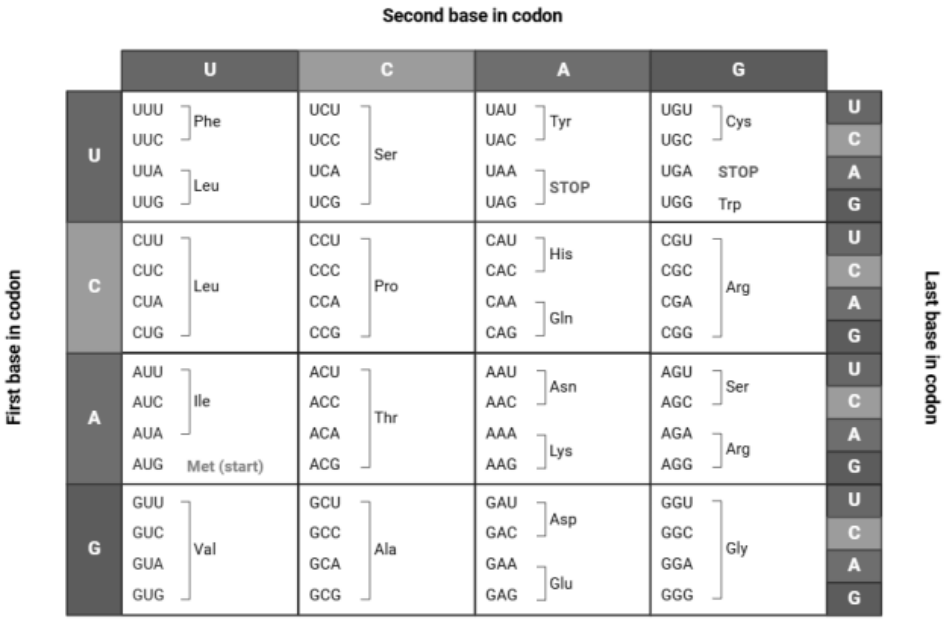


Which pairing correctly identifies these roles?

A. mRNA reads codons; rRNA delivers amino acids
B. tRNA reads codons; mRNA delivers amino acids
C. rRNA forms part of the ribosome; tRNA brings amino acids
D. mRNA forms the ribosome; rRNA brings amino acids

7 A mutation changes one DNA base:

Original DNA coding sequence	CCCATCGGACTC
Original mRNA sequence	CCCAUCGGACUC
Mutated coding DNA	CCCATTGGACTC
Mutated mRNA	CCCAUUGGACTC



Based on the codon chart is the most likely consequence?

A. The protein will be non-functional

B. The organism will not survive

C. There will be little or no effect on protein function

D. The gene will stop being expressed

8 A mutation changes a codon so that a different amino acid is added, altering the protein's shape.
Which outcome is most consistent with this change?

A. The mutation must always be harmful
B. The protein may function differently, better, worse, or not at all
C. The mutation will be ignored during translation
D. The DNA will automatically repair itself

9 Which of the following is most likely to cause a DNA mutation?

A. DNA replication during interphase
B. Exposure to high levels of UV radiation
C. Transcription of a gene
D. Translation at the ribosome

10 Why are mutations considered the only source of new alleles?

A. Sexual reproduction creates new genes
B. Natural selection creates new DNA sequences
C. Mutations change the DNA sequence itself
D. DNA replication rearranges existing alleles

Section 2

19 marks

Attempt Questions 11-15

Allow about 25 minutes for this section

Question 11 (4 marks)

Relate the structure of the DNA double helix to its functions.

Question 12 (5 marks)

With the aid of a model or diagram, explain how DNA replication is semi conservative.

Question 13 (4 marks)

Outline the process of transcription and translation.

Question 14 (1 mark)

Define the term 'mutation'.

Question 15 (5 marks)

Outline the relationship between mutation and evolution.

End of paper