Centre Number

Student Number

9 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 – 10 marks (pages 6-8)
- 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 All living organisms store instructions that determine their structure and function.
Which statement best explains how this information ultimately produces a characteristic?

A. DNA directly becomes a visible trait
B. A chromosome is translated into a protein
C. A gene codes for a polypeptide that contributes to a characteristic
D. An allele determines the entire genome

2 A student states:
"A gene and an allele are the same thing because they both code for traits."
Which response best corrects this statement?

A. Genes code for traits, alleles code for proteins
B. Alleles are different versions of the same gene
C. Genes are found on alleles
D. Alleles make up chromosomes

3 A human cell may contain the following biological structures:

Chromosome	Genome
Gene	DNA

Which option correctly orders these from smallest to largest?

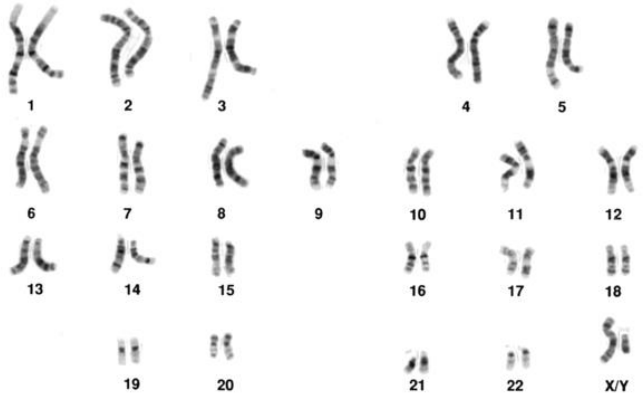
A. Gene → DNA → Chromosome → Genome

B. DNA → Gene → Chromosome → Genome

C. Gene → Chromosome → DNA → Genome

D. Chromosome → Gene → DNA → Genome

4 A human karyotype shows:



What can be concluded from this karyotype?

A. The individual is female

B. The individual has 22 chromosomes

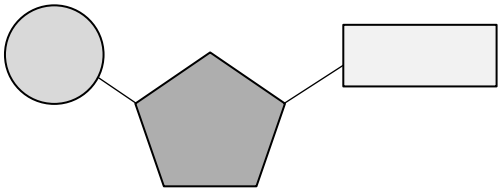
C. The individual is male

D. The individual has only autosomes

5 Which of the following is not a correct statement about a gene?

A. A gene is a section of DNA
B. A gene codes for a polypeptide
C. A gene determines the entire genome
D. A gene contributes to a characteristic

6 A gene is described as having a chemical structure made of repeating subunits.



Which structure best represents the basic unit of a gene?

A. Amino acids joined by peptide bonds
B. Nucleotides joined by phosphodiester bonds
C. Sugars joined by hydrogen bonds
D. Nitrogen bases joined by ionic bonds

7 A student draws a structure and appends the following labels:

Phosphate group
Deoxyribose sugar
Nitrogenous base

What has the student correctly drawn?

A. An allele

B. A chromosome

C. A nucleotide

D. A polypeptide

8 A DNA strand has the sequence:

5' – A T G C C A – 3'

Which sequence represents the complementary strand?

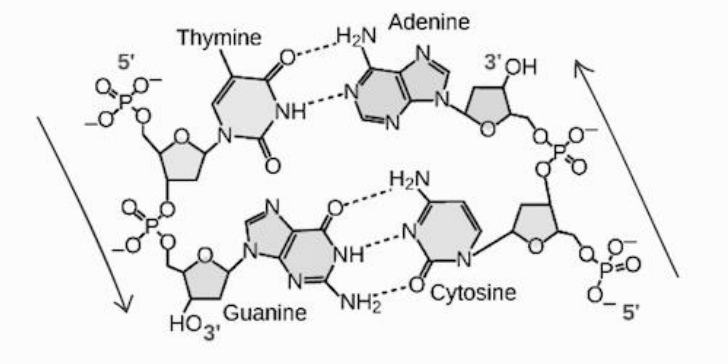
A. 3' – T A C G G T – 5'

B. 5' – T A C G G T – 3'

C. 3' – A U G C C A – 5'

D. 5' – U A C G G T – 3'

9 Why is it important that DNA strands run in opposite directions?



A. To allow chromosomes to condense

B. To ensure correct base pairing and DNA replication

C. To increase genetic variation

D. To allow genes to form alleles

10 Which feature of DNA best explains how large amounts of genetic information can be stored efficiently?

A. Linear shape

B. Double helix structure

C. Sugar–phosphate backbone

D. Repeating nucleotide sequence

Section 2

17 marks

Attempt Questions 11-15

Allow about 25 minutes for this section

Question 11 (1 mark)

Define the term 'gene'

Question 12 (4 marks)

Describe how DNA, genes, chromosomes and the genome are related in the organisation of genetic information in a human cell.

Question 13 (3 marks)

Distinguish between a gene and a chromosome.

Question 14 (5 marks)

Explain how information stored in a gene results in an observable characteristic in an organism.

Question 15 (4 marks)

Describe how the base pairing rule contributes to the stability and function of the DNA molecule.

End of paper