

6.2	6.2.1	DNA✓/Deoxyribonucleic acid	(1)
	6.2.2	Nucleus✓/chromosome Mitochondria✓	(2)
		(Mark first TWO only)	
	6.2.3	(a) Nucleotide✓ (b) Guanine✓ (c) Phosphate✓ (d) Hydrogen✓ bond	(1) (1) (1) (1)
	6.2.4	Double helix✓	(1)
	6.2.5	DNA replication✓	(1)
			(9)
6.3	6.3.1	Translation✓	(1)
	6.3.2	(a) Ribosome✓ (b)mRNA✓/messenger RNA (c) Peptide✓	(1) (1) (1)
	6.3.3	(a) C✓ (b) B✓ (c) D✓	(1) (1) (1)
			(7)
6.4	6.4.1	(a) Ribosome✓ (b) W – mRNA✓ Y – tRNA✓ (c) Nucleotide ✓	(1) (2) (1)
	6.4.2	(a) Cytoplasm✓/endoplasmic reticulum (b) Nucleus✓ /nucleoplasm	(1) (1)
			(6)

- 6.5 6.5.1 DNA profile✓ (1)
- 6.5.2 Q✓ (1)
- 6.5.3 All the DNA bands match the DNA bands of the blood on the broken glass✓ (1)
- 6.5.4 - Human error could give incorrect results✓
 - Only a small amount of DNA was used✓ and may not be reliable
 - Framing✓/planting false evidence
 - Suspect can have an identical twin✓ with the same DNA profile
(Mark first TWO only) Any 2 (2)
 (5)

6.6

Monomer of RNA	Monomer of DNA
Contains the sugar ribose✓	Contains the sugar deoxyribose✓
Contains the nitrogenous base uracil✓	Contains the nitrogenous base thymine✓

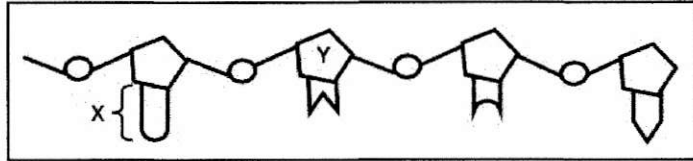
(Mark first TWO only)

✓ table

(5)

6. CODE OF LIFE

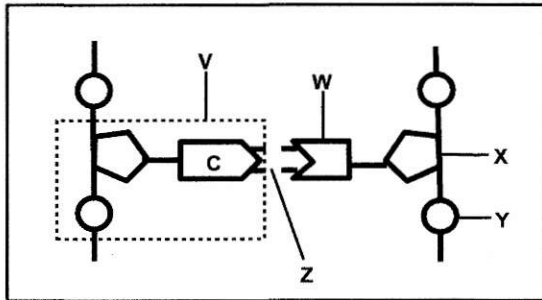
6.1 The diagram below represents a single-stranded nucleic acid found in the nucleus.



6.1.1 Identify the molecule represented in the diagram. (1)

6.1.2 Identify:
(a) Part X (1)
(b) Sugar Y (1)
(3)

6.2 The diagram represents a portion of a nucleic acid.



6.2.1 Name the nucleic acid. (1)

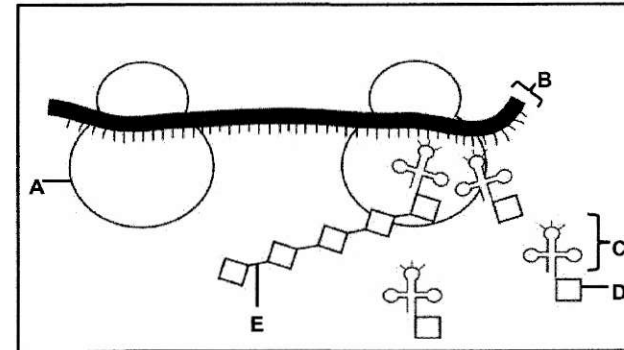
6.2.2 Name TWO places in animal cells where this nucleic acid may be found. (2)

6.2.3 Identify:
(a) Portion V (1)
(b) Nitrogenous base W (1)
(c) Molecule Y (1)
(d) Bond Z (1)

6.2.4 What is the natural shape of this molecule? (1)

6.2.5 Name the process during which this molecule makes a copy of itself. (1)
(9)

6.3 The diagram represents a process during protein synthesis.

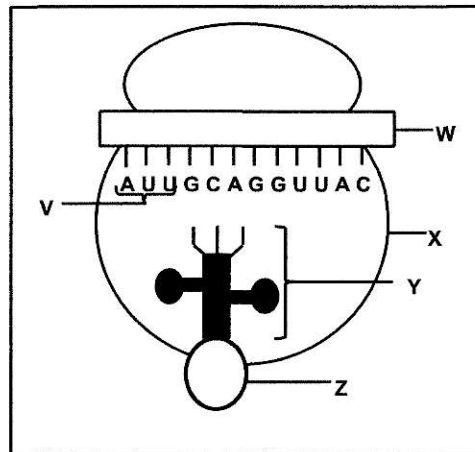


6.3.1 Identify the process above. (1)

6.3.2 Identify:
(a) Organelle A (1)
(b) Molecule B (1)
(c) The bond at E (1)

6.3.3 Give only the LETTER of the molecule that:
(a) Carries the amino acid (1)
(b) Is copied from DNA (1)
(c) Is the monomer/building block of proteins (1)
(7)

6.4 The diagram below represents the process of translation.



6.4.1 Name:

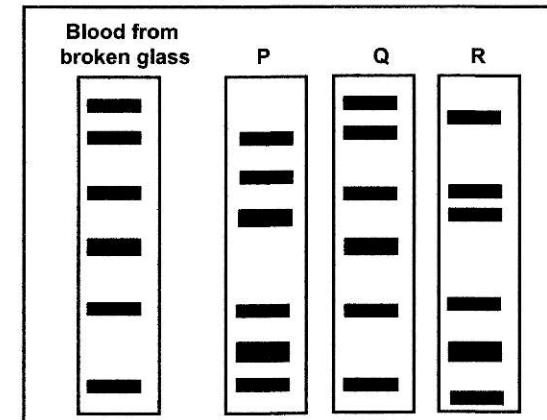
- (a) Organelle **X** (1)
- (b) Molecules **W** and **Y** (2)
- (c) The monomer of molecule **W** (1)

6.4.2 Where in the cell is:

- (a) Organelle **X** found (1)
 - (b) Molecule **W** formed (1)
- (6)**

6.5 When a thief broke into a car he cut his arm on the broken glass. Scientists extracted DNA from the blood found on the broken glass. They analysed this DNA sample and compared it to the DNA from three suspects, **P**, **Q** and **R**.

The table below shows the results of the analysis for the DNA from each source.



- 6.5.1 What do the diagrams above represent? (1)
 - 6.5.2 Which suspect is most likely the thief? (1)
 - 6.5.3 Give a reason for your answer to QUESTION 6.5.2. (1)
 - 6.5.4 State TWO possible disadvantages of using this evidence in a court of law. (2)
- (5)**

6.6 Tabulate TWO structural differences between a monomer of RNA and a monomer of DNA. (5)