Question 1:

[Maximum mark: 1]

What is the chemical formula of water?

a) H_2O
b) O_2
c) H_2O_2
d) CO_2

Question 2:

[Maximum mark: 1]

Which structure controls the activities of the cell?

a) Cell membrane
b) Cytoplasm
c) Nucleus
d) Ribosomes

Question 3:

[Maximum mark: 1]

Which nitrogenous base is found in DNA but **not** in RNA?

a) Adenine
b) Thymine
c) Cytosine
d) Guanine

Question 4:

[Maximum mark: 1]

Biodiversity refers to the:

a) Number of mountains in a region
b) A variety of living organisms in an area
c) Amount of rainfall in a region
d) Number of rivers in a country

Question 5:

[Maximum mark: 1]

DNA stands for:

a) Dioxyribonucleic Acid
b) Deoxyribose Acid
c) Double Nuclear Acid
d) Deoxyribonucleic Acid

Question 6:

[Maximum mark: 5]

A student investigates the effect of temperature on an enzyme.

The results are shown below.

Temperature (°C)	Rate of reaction (arbitrary units)
10	2
20	5
30	8
40	11
50	6
60	1

a. Identify the optimum temperature.

b. Describe the trend shown in the data.

c. Explain why enzyme activity decreases at temperatures above the optimum.

Question 7:

[Maximum mark: 6]

A student places plant cells into distilled water and another set into a concentrated salt solution.

a. Define osmosis.

b. Explain what happens to the cells in:

(i) distilled water

(ii) concentrated salt solution

Question 8:

[Maximum mark: 6]

The equation for photosynthesis is:

Carbon dioxide + Water → Glucose + Oxygen

a. State the role of chlorophyll in photosynthesis.

b. Explain how light intensity affects the rate of photosynthesis.

c. State two factors other than light intensity that affect photosynthesis.

Question 9:

[Maximum mark: 6]

a. State one function of each of the following biological molecules:

(i) Carbohydrates

(ii) Lipids

(iii) Proteins

b. Explain why proteins are important in living organisms. Give three different functions.

Question 10:

[Maximum mark: 6]

a. State the function of DNA.

b. Explain how the sequence of bases in DNA determines the amino acid sequence in a protein.