NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF HEALTH, NATURAL RESOURCES AND APPLIED SCIENCES

SCHOOL OF AGRICULTURE AND NATURAL RESOURCE SCIENCES

DEPARTMENT OF NATURAL RESOURCE SCIENCES

QUALIFICATION: BACHELOR OF NATURAL RESOURCE MANAGEMENT	
QUALIFICATION CODE: 07BNRS	**LEVEL:** 7
COURSE CODE: BNS511S	**COURSE NAME:** BIOLOGY FOR NATURAL SCIENCES
DATE: JUNE 2023	
DURATION: 3 HOURS	**MARKS:** 150

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER	
EXAMINER(S)	Mrs. Louise Theron
MODERATOR:	Mrs. Clarence Ntesa

INSTRUCTIONS
1. Answer ALL the questions. 2. Write clearly and neatly. 3. Number the answers clearly.

PERMISSIBLE MATERIALS

1. Examination question paper
2. Answering book

THIS QUESTION PAPER CONSISTS OF 3 PAGES (Excluding this front page).

SECTION A

QUESTION 1

Give the scientific term for each of the following: **[10]**

1.1 The process whereby a solid changes directly into a gas.
1.2 The number of protons in the nucleus of an atom is known as the ..... number.
1.3 Process used to separate milk from cream (at high speed).
1.4 Atoms of the same element, but with different masses.
1.5 Common name for the Archaebacteria that lives in salt pans.
1.6 What bacteria have in their cell walls – as compared to cellulose found in plant cells?
1.7 The two cycles found in viral reproduction are the lytic cycle and the ..... cycle.
1.8 Type (growth form) of lichens that grow as a thin crust on the surface of rocks.
1.9 Sperm producing gametangium.
1.10 Phylum that *Laminaria* belongs to.

QUESTION 2

Explain the difference between the following pairs of terms. **[10]**

2.1 Isomorphic and heteromorphic
2.2 Isogametes and Oogametes
2.3 Plasmogamy and Karyogamy
2.4 Elements and Compounds
2.5 Isotopes and Ions

QUESTION 3

State whether each of the following statements is True **OR** False. If the statement is false – then state False – **AND** also – re-write the statement to correct it. **[10]**

3.1 Impurities lowers the freezing point of a substance and raises its boiling point.
3.2 *Porphyra* and *Ulva* are typical examples of an algae that have alternation of isomorphic generations.
3.3 The process whereby compounds are split up to give simpler substances is known as synthesis.
3.4 Sperm and eggs are examples of anisogametes.
3.5 The process whereby a solid turns into a gas is known as sublimation.
3.6 Agar and Carrageenan are commercially important cell wall products harvested from Chlorophyta.
3.7 Compounds can be decomposed by ordinary chemical means.

SUB – TOTAL (30)

SECTION B

QUESTION 4

4.1 Explain the difference between water-soluble and fat-soluble vitamins and how they should be taken. (4)

4.2 What are the building blocks of proteins? (1)

4.3 In what way are elements in the same group on the periodic table similar? (3)

4.4 Complete the following: The system for organisms scientific names was first developed by ..(a).. and this two-word naming system is called ..(b). (2)

[10]

QUESTION 5

5.1 Explain why viruses are NOT classified into one of the 6 Kingdoms discussed in class. Provide **FIVE (5)** reasons! (5)

5.2 Explain the term "Bacteriophage". (1)

5.3 State **THREE (3)** DIFFERENT ways in which viruses affects us humans **negatively**. (3)

5.4 To which Kingdom do true bacteria belong? (1)

5.5 Provide **FOUR (4)** characteristics of bacteria. (4)

5.6 Where is the genetic material of a bacterium found? (1)

[15]

QUESTION 6

6.1 Provide the correct term for each of the following statements: (8)

(a) Motile organs of *Amoeba*.
(b) Phylum that *Amoeba* belongs to.
(c) Organelle that regulates the water content inside *Amoeba*.
(d) Motile organs of *Trypanosoma*.
(e) The firm, flexible outer layer that protects the body of *Euglena*.
(f) The motile organs of *Paramecium*.
(g) The inactive stage in which *Euglena* survive harsh conditions.
(h) The opening (not the groove) where food enters the body of *Paramecium*.

6.2 Distinguish between the ecto- and endoplasma of the Rhizopoda. Explain how they differ and also name the function of each. (4)

6.3 Briefly explain how *Paramecium* feeds. (6)

6.4 Members of the phylum Ciliophora are unique because they are multinucleated (having more than one nucleus). Provide the function(s) for each of the nuclei. (2)

[20]

QUESTION 7

7.1 Name the **THREE (3)** "Plankton" Phyla (Kingdom: Protoctista) discussed in class and then provide **TWO (2)** identifying/unique characteristics for each. (9)

7.2 Explain the term "fossil". (1)

[10]

QUESTION 8

8.1 Distinguish between Red Tide and Eutrophication. (6)

8.2 Provide proper explanations for each of the following terms: (6)

(a) Gametophyte
(b) Sporophyte
(c) Gametangium
(d) Sporangium
(e) Antheridium
(f) Archegonium

8.3 Explain the following **THREE (3)** terms, as they relate to algae: (3)

(a) holdfast
(b) stipe **[15]**
(c) fronds

QUESTION 9

9.1 Provide **FOUR (4)** differences between fungi (Mycota) and plants (Plantae). (4)

9.2 Explain the basic body structure of a generic fungus (use mushroom as an example). Discuss the different parts and refer to the functions of each. (6)

9.3 How does the feeding of fungi differ from that of most animals and name at least **ONE (1)** animal that has similar digestion to that of fungi. (5)

9.4 What is your understanding of the term mycorrhiza? (What type of symbiosis is found here?) (5)

9.5 Compare the morphology of *Rhizopus* – as an example of Zygomycota with that of *Penicillium* – as an example of Deuteromycota. Discuss the similarities AND differences between them. (8)

9.6 Explain why it is important for us to protect the lichens that grows near Wlotzkasbaken as well as the ones found on the rocks at Waterberg. (7)

[35]

QUESTION 10

10.1 Where does the light reaction of photosynthesis take place? (1)

10.2 Name **FIVE (5)** <u>internal factors</u> that influence the rate of photosynthesis in a plant. (5)

10.3 Name the **FOUR (4)** stages of Respiration and state where in the cell each stages takes place. (8)

10.4 Define the term transpiration. (1)

[15]

SUB – TOTAL (120)

TOTAL [150]