NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF HEALTH, NATURAL RESOURCES AND APPLIED SCIENCES
SCHOOL OF NATURAL AND APPLIED SCIENCES
DEPARTMENT OF BIOLOGY, CHEMISTRY AND PHYSICS

QUALIFICATION : BACHELOR OF SCIENCE (HONOURS)	
QUALIFICATION CODE: 08BOSC	**LEVEL:** 8
COURSE CODE: BIO811S	**COURSE NAME:** BIOINFORMATICS
SESSION: JULY 2023	**PAPER:** THEORY
DURATION: 3 HOURS	**MARKS:** 120

SECOND OPPORTUNITY/SUPPLEMENTARY EXAMINATION QUESTION PAPER	
EXAMINER(S)	**Prof Percy Chimwamurombe**
MODERATOR:	**Dr Jean-Damascene Uzabakiriho**

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

PERMISSIBLE MATERIALS

Non-programmable Calculators

ATTACHMENTS

None

THIS QUESTION PAPER CONSISTS OF 2 PAGES (Including this front page)

SECTION A: **[60 MARKS]**

1. Using examples, write short notes on the following term used in Bioinformatics:
   a. BLAT (5 marks)
   b. BLOB (5 marks)
   c. Phylogenetic tree (5 marks)
   d. Gene ontology (5 marks)
   e. BankIt (5 marks)
   f. FASTA. (5 marks)

2. Give a practical use of genomic circuits in single genes. (10 marks)

3. Use the example of a human disease complex to describe the concept of integrating single gene circuits. (10 marks)

4. Describe any complex gene circuits, which you have studied. (10 marks)

Section B: Essays **[60 MARKS]**

1. Describe the lactose operon and how it can be used to explain a single gene circuit. (30 marks)

2. Write a detailed essay on BLAST. (30 marks)