NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF HEALTH AND APPLIED SCIENCES

DEPARTMENT OF NATURAL AND APPLIED SCIENCES

QUALIFICATION : BACHELOR OF SCIENCE HONOURS	
QUALIFICATION CODE: 08BOSH	**LEVEL:** 8
COURSE: ENVIRONMENT PHYSICS	**COURSE CODE:** ENP811S
SESSION: JUNE 2019	**PAPER:** THEORY
DURATION: 3 HOURS	**MARKS:** 100

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER	
EXAMINER(S)	Dr Sylvanus A. Onjefu
MODERATOR:	Dr Shobo A. Babajide

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

PERMISSIBLE MATERIALS
Non-programmable Calculator

ATTACHMENT
None

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

QUESTION 1 **[23]**

1.1 Explain how scientific assessment and risk analysis can be used to solve environmental problems. (8)

1.2 Describe how political action can help in addressing environmental challenges in a community. (3)

1.3 Briefly discuss the Coriolis effect. (4)

1.4 Differentiate between Weather and Climate. (4)

1.5 Discuss how the sun is the primary determinant of climate. (4)

QUESTION 2 **[22]**

2.1 Explain the climate zone of a high elevation. (4)

2.2 What layer of the atmosphere is characterised by steady wind but no turbulence? And why is the layer critical to life on Earth's surface? (5)

2.3 How does temperature affect atmospheric circulation. (5)

2.4 Explain the term EL Nino-Southern Oscillation (ENSO). (3)

2.5 What is a tornado? And how are tornadoes formed? (5)

QUESTION 3 **[22]**

3.1 Explain the term radioactivity. (3)

3.2 Analyse Low-level radioactive wastes and High-level radioactive wastes and give two examples each. (8)

3.3 Why is decommissioning nuclear power plants such a major task? (5)

3.4 **Uranium decay energy release:** Calculate the disintegration energy when $^{232}_{92}U$ (mass = 232.037146 u) decays to $^{228}_{90}Th$ (228.028731 u) with the emission of an α – particle. (Note: masses are for neural atoms). [Take mass of $^{4}_{2}He = 4.002603\ u$] [Also, 1 u = 931.5 MeV]. (6)

QUESTION 4 **[33]**

4.1 Differentiate between the three Classes of air pollutant and give two example each. (9)

4.2 What is meant by Smog? What are the two types of Smog? (4)

4.3 Discuss the cause and effects of two types of Smog. (9)

4.4 What do you understand by the term plume as used in environmental science? (3)

4.5 Explain two uses of visible smoke plume behaviours. (4)

4.6 Explain and Illustrate with the aid of a neat diagram how atmospheric condition give rise to a fanning plume. (4)

END