

BOWEN UNIVERSITY IWO
COLLEGE OF AGRICULTURE, ENGINEERING AND SCIENCE
PURE AND APPLIED BIOLOGY PROGRAMME
2021/2022 FIRST SEMESTER EXAMINATION
PAB 403: SOIL ECOLOGY (THEORY)

Instruction: Answer question one and any other two (2) questions. Time allowed: 2 hours

1. (a) In tabular format, provide five (5) distinguishing features between surface soil and sub- soil that highlight their unique biological, chemical and physical properties. *(10 marks)*

(b) Write short notes on the following:
 - i. Fungi as organic matter decomposer
 - ii. Mycorrhiza
 - iii. Crop rotation
 - iv. Rotifers*(15 marks)*

2. (a) State any four (4) soil structure types and their corresponding descriptions. *(12 marks)*
(b) Briefly discuss two (2) different processes by which chemical weathering occurs in rocks that lead to the formation of soils. *(8 marks)*
(c) List five (5) examples of flora organisms found in a typical soil environment. *(5 marks)*

3. Discuss in detail any four (4) beneficial effects of soil organisms to plants. *(25 marks)*

4. Explain the properties of the following major world soil order types:
 - (a) Inceptisols *(5 marks)*
 - (b) Alfisols *(5 marks)*
 - (c) Gelisols *(5 marks)*
 - (d) Vertisols *(5 marks)*
 - (e) Ultisols *(5 marks)*

5. (a) List and briefly explain the classical components of any given soil body. *(5 marks)*
(b) Give a critical review of the five important factors necessary for weathering of minerals in rocks that lead to soil formation. *(20 marks)*