

**BOWEN UNIVERSITY, IWO**  
**COLLEGE OF AGRICULTURE, ENGINEERING, AND SCIENCE**  
**2022/2023 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, outline five (5) essential functions performed by soil organisms with at least one specific example of a contributing microorganism (10 marks)  
(b) Briefly comment on the major classes of fungi and their roles in soil fertility. (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. (a) Define soil management. (5 marks)  
(b) Briefly explain any four (4) soil management practices common in the tropics. (5 marks)
4. Explain the properties of the following major world soil order types: (20 marks)
  - (a) Inceptisols (5 marks)
  - (b) Alfisols (5 marks)
  - (c) Vertisols (5 marks)
  - (d) Aridisols (5 marks)
  - (e) Ultisols (5 marks)
5. (a) List five practical uses of the soil profile of a given soil body. (5 marks)  
(b) Explain any four (4) soil horizons that may be found within a generalized soil profile, highlighting their unique properties and characteristics. (20 marks)