



**FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA**  
**DEPARTMENT OF MICROBIOLOGY**  
**FIRST SEMESTER EXAMINATION, 2017/2018 SESSION**  
**SOIL MICROBIOLOGY (MCB 416), 3 Units**

**Instruction: Answer Question 1 and any other 4 Questions    Time: 2 Hours**

1. Describe methods you would use to carry out the microbial analysis of a given soil sample?
- 2a. Soil is believed to be a living system, with 2 specific but contrasting examples, describe how the dynamics of soil ecosystem relate with the interrelationship among the microbial species?
- 2b. Differentiate between (i) biodegradation and bioremediation (ii) biostimulation and bioaugmentation
- 3a. In spite of the numerous advantages associated with bioremediation, it is not without its antecedent disadvantages. Mention 5 limitations associated with bioremediation
- 3b. The significance of bioindicators to determine soil health cannot be overemphasied. Outline 5 features that involve the use of microorganisms as indicators of soil quality
- 4a. Explain the role of microorganisms in pedogenesis.
- 4b. Highlight 5 advantages bioindicators have over traditional methods of indicating soil health.
- 5a. Discuss the mechanism of biodegradation of n-alkanes by monooxygenase
- 5b. Mention the role of soil organic matter in shaping soil microbial community.
- 6a. Give reasons for a lower oxygen and a higher carbondioxide in soil compared with atmospheric air.
- 6b. Name five factors influencing the number and activities of soil microorganisms?
7. Soils are excellent culture media for the growth of many types of microorganisms, commend freely giving relevant examples.