FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
DEPARTMENT OF MICROBIOLOGY
FIRST SEMESTER EXAMINATION, 2018/2019 SESSION
SOIL MICROBIOLOGY (MCB 416) 3 CREDIT UNITS

INSTRUCTION: answer **question (1)** and any other four (4) questions.

TIME ALLOWED: 2½ Hours

1(a). In a tabular form write 4 differences between symbiosis and mutualism.

1(b). Define the following terms and give relevant examples:

(i) competition
(ii) commensalism
(iii) ammensalism
(iv) predation
(v) parasitism

2(a). Describe the association that exists between *Rhizobium and* legume crop?

2(b). Which layer of the soil is the richest in microbial life? Give reasons for your answer.

3(a). Describe the microbial mineralization of organic materials under anaerobic conditions.

3(b). How does the nature of pollutant determine the rate of microbial degradation of soil organic compounds?

4(a). Describe 2 methods you would use to carry out either an *in situ* or *ex situ* bioremediation of a contaminated soil.

4(b). Give reasons why soil is lower in oxygen and higher in carbondioxide?

5. Discuss 5 parameters that informed the use of microorganisms as indicators of soil quality.

6(a). Explain the following terms, giving relevant examples of each:
(i) mesophiles, (ii) psychrophiles (iii) thermophiles

6(b). State three (3) importance of soil moisture to soil microorganisms

7(a). Differentiate between soil horizon and soil profile

7(b). Describe the soil horizon