Federal University of Technology Owerri

School of Agric. and Agric. Technology, Department of Soil Science Technology

Harmattan semester examination, 2014/2015 session.

Soil Microbiology and Biochemistry , SST 501. Time allowed: 3 hours

Instruction: Answer five questions, at least two (2) questions from each section.

Section A

1a(i) What is mycorrhizae symbiotic association.

(ii) State the major types of mycorrhizae association in a humid tropical environment.

(iii) Highlight the agronomic potentials of mycorrhizae symbiotic association.

1b Explain the following biological nitrogen fixing associations

Azolliculture,

Azospirillum,

Rhizobium.

2a. With equations, explain Ammonification and Nitrification processes in nitrogen cycle.

b. Based on temperature requirement, classify soil organisms.

c. With the aid of a diagram, discuss the microbial sigmoid curve.

3a(i) Explain the Phosphorus cycle.

(ii) Outline the major factors that affect phosphorus availability in soil.

(b) give at least three (3) examples of each of the following groups of soil micro-organisms

nitrogen fixing bacteria

cellulose decomposing bacteria

protein decomposing fungi.

Section B

4a. Explain the human uses of hemicelluloses as it affects our industries.

b. Structurally illustrate the four common sugars found in hemicelluloses.

5. With explicit diagram, discuss sulphur transformation.

6. Write short note on each of the following

Cellulose,

Ligning,

Agricultural benefits of sulphate/sulphuric acid