OBAFEMI AWOLOWO UNIVERSITY, ILE – IFE, NIGERIA.
FACULTY OF SCIENCE
DEPARTMENT OF MICROBIOLOGY

B.Sc. (Microbiology) Degree Examination.
SEMESTER: Rain 201012011 Session   **Date:** 15th December, 2011
COURSE CODE: MCB 408   **Time allowed:** 2½ hours
COURSE TITLE: Microbial Ecology
INSTRUCTION: Answer all questions with each section in a separate booklet.

SECTION A
1a.   Mention **3** out of the 4 theories of the 'Origin of life'
1b.   List three forms of taxonomy for classifying species
1c.   The 'Tree of life' consists of three domains based on common ribosomal RNA
        sequences, these are_____ , _____ and _____

2a.   The criteria with which to classify soil microorganisms include size, morphology,
        molecular genetics or physiology, and metabolism. List 4 metabolic classifications of
        soil organisms and define TWO of them
2b.   Differentiate between oxygenic and anoxygenic photosynthesis

3a.   Signature molecules can be used as a measure of microbial biomass and microbial
        community structure of soil microbiota. Mention **3** signature molecules describing
        in a sentence what each measures.
3b.   Describe with an annotated diagram, the Winogradsky column.
3c.   How is Winogradsky set up different from Beijerinck set up?

4a.   State the Shelford's Law of Tolerance
4b.   The mechanism of low metabolic rate is widespread in soil and marine bacteria as one
        of the Starvation Strategies. Mention two of the ways by which cells respond to
        nutrient deprivation

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SECTION B.

1a.   What is antagonism?
 b.   Discuss and comment on the various forms of antagonism found among microbial species
        in an ecosystem.
 c.   Explain the "Competitive Exclusion Principle" found among microbial species.

2a.   Define the following terms;
        i) Rhizosphere   ii) Rhizoplane   iii) Mycorrhizae   iv) Ectomycorrhizae and v)
        Endomycorrhizae.
 b.   Briefly discuss the influence of microbial community on plant development in a
        rhizosphere.
 c.   Distinguish between parasitism and predation.

B.O.O.