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DEPARTMENT OF MICROBIOLOGY

2016/2017 HARMATTAN SEMESTER EXAMINATION

MCB 307: Soil Microbiology

Time: 1hr 30min

INSTRUCTION: Attempt ONE questions from EACH Section

SECTION A

- 1a. Define the term Pesticide
- b. List four factors that determine the persistence and degradation of pesticides in soil
- c. State four origins of metals and metalloids in soil
- d. Write concisely on how pesticides affect non target and beneficial microorganisms in soil
- 2a. Describe the mutualistic relationship that exist between fungi and a named photosynthesizing microorganism
- b. Differentiate between an endomycorrhiza and ectomycorrhiza
- c. State four benefits of mycorrhizal association to plants
- d. List four microorganisms that show predatory skills in a terrestrial environment

SECTION B

- 3a. Highlight the various factors that can affect the distribution and growth of microorganisms in the soil
- b. Discuss any three in (a) above in detail
- 4a. From series of soil samples supplied to your soil microbiology laboratory, describe how the following methods can be used to quantify the microorganisms present in the soil samples
- (i) Soil plate method (ii) Soil dessication method
- b. State five precautions to ensure safety while working on soil samples

SECTION C

- 5a. Define the term 'biogeochemistry' is a interaction b/w biotic & abiotic components of an ecosystem.
- b. List the components of a global ecosphere
- c. Write short notes on any of the following:  
(i) Biodeterioration (ii) Bioremediation
- 6a. What is biodegradation?  
It is the breakdown of material in a activities of organisms.
- b. Describe any six biogeochemical reactions involving prokaryotes in an ecosphere with emphasis on the element, process, summary of partial reactions and examples of organisms involved

Bioremediation: