



CRAWFORD UNIVERSITY

Faith City, Igbesa, Ogun State.

2016/2017 RAIN SEMESTER EXAMINATIONS

COLLEGE: NATURAL AND APPLIED SCIENCES

DEPARTMENT: BIOLOGICAL SCIENCES

PROGRAMME: MICROBIOLOGY

COURSE CODE AND TITLE: MCB 408 – SOIL MICROBIOLOGY

UNITS: 2

TIME: 2 HOURS

INSTRUCTION: ANSWER QUESTION 1 AND ANY OTHER THREE QUESTIONS.

1. Soil microorganisms can be classified ecologically based on growth dynamics into _____ (1) and _____ (2) species. The *cyanobacterium* and *anabaena*, forms a symbiotic association with the aquatic fern called _____ (3). An example of ascomycetes which are septate with sexual spores in an ascus is _____ (4). Soil microorganisms that will first inhabit soils following disasters is called _____ (5). The symbiotic association between plant roots and fungi is termed _____ (6). A symbiotic association between fungi and algae or fungi and cyanobacteria is called _____ (7). The ability of tardigrades to undergo dormancy induced by environmental stress and reactivating up to several years later is called _____ (8). Wingless insects lacking antennae and eyes that live near plant roots and litter are the _____ (9). Prostigmatic mites feed on fungi, _____ (10) and other soil organisms. (15mks)

2.(a) List and explain the economic significance of Bacteria in soil fertility

(b) Define the following: i. Zymogenous

ii. Phototroph

iii. Heterotroph

iv. Rhizomorph

v. Soil ecology

(15mks)

3.(a) Elucidate briefly on the importance of the following soil macrofauna: (15mks)

i. Millipedes

ii. Termites

iii. Earthworms

(b) Differentiate between Autochthonous and Zymogenous species of microorganisms.

4 (a) Discuss Soil Enzymes.

(b) State the factors affecting the decomposition of organic matter in soil environment.

(c) Identify the five classes of fungi.

(15mks)

5. (a) Discuss the key environmental functions of soil organisms

(b) State two broad groups of soil organisms

(c) Give three examples each of the groups mentioned in (b) above. (15mks)

6. (a) What is AZOLLA?

(b) Differentiate between Obligate and Facultative anaerobes

(c) Discuss Mycorrhiza Association.

(15mks)