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# **UNIVERSITY EXAMINATIONS 2022/2023 ACADEMIC YEAR**

## **THIRD YEAR 2ND SEMESTER SPECIAL/SUPPLEMENTARY EXAMINATIONS**

**FOR THE DEGREE OF BACHELOR OF SCIENCE AGRICULTURE AND  
BIOTECHNOLOGY**

**COURSE CODE:** ASS 323

**COURSE TITLE:** SOIL BIOLOGY AND BIOREMEDIATION

**DATE:** 9<sup>TH</sup> AUGUST 2023

**TIME:** 2 – 4 PM

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### **INSTRUCTIONS TO CANDIDATES**

Answer Question ONE and any other TWO Questions.

TIME: 2 Hours

This paper consists of 2 printed pages. Please Turn Over



**QUESTION ONE = 30 MARKS (Compulsory)**

- a) Define Biogeochemical Cycles (2 Marks)
- b) Describe the role of Robert Koch in the field of Soil Biology (4 Marks)
- c) Differentiate between Chloroform Fumigation Incubation and Chloroform Fumigation Extraction (12 Marks)
- d) Describe the fate of any SIX organic contaminants (12 Marks)

**QUESTION TWO = 20 MARKS**

Describe the Biological Nitrogen Fixation (BNF) (20 Marks)

**QUESTION THREE = 20 MARKS**

Discuss the culture based studies as a measure of physiological analysis of soil microbes. (20 Marks)

**QUESTION FOUR = 20 MARKS**

Describe any FOUR effects of physical stresses (Modulators) on microorganisms and the chemical adaptation they induce (20 Marks)

**QUESTION FIVE = 20 MARKS**

Discuss various methods of Managed Bioremediation. (20 Marks)