RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES

B.Sc. Honours in Applied Biology
Third Year – Semester II Examination –July 2020

MIB 3205 – PLANT MICROBE INTERACTIONS

Time: Two (02) hours

Answer ALL questions.

1. a) "Mycorrhizal roots have a greater capacity to take up phosphate (Pi) from the soil solution than non-mycorrhizal root tips". Evaluate this statement **(50 marks)**

   b) Briefly discuss the role of arbuscular mycorrhizal fungi (AMF) in plant heavy metal absorbance in cadmium (Cd) contaminated soil. **(50 marks)**

2. a) Describe how rhizosphere microflora assist in promoting plant health and nutrition. **(60 marks)**

   b) Isolating rhizosphere microorganisms having beneficial characteristics and their reintroduction as inoculants for enhancing crop productivity has been attempted by many researchers, but without consistent results.
   Analyze this phenomenon. **(40 marks)**

3. a) Evaluate the various mechanisms utilized by nitrogen fixing bacteria to protect nitrogenase enzyme from oxygen. **(50 marks)**

   b) Explain the different ways of applying free living and symbiotic biological nitrogen fixers in sustainable crop production. **(50 marks)**

4. a) Give a brief account on molecular interactions in establishing and functioning of microbial associations with plants. Limit your answer to five such interactions. Memorizing names of species involved is not expected. **(50 marks)**

   b) Discuss Dark Septate Endophytic (DSE) fungi in roots of forest plants and elucidate their influence on host plant. **(50 marks)**

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