M.Sc.(Ag.) Examination, 2019
Semester-II
Soil Science and Agricultural Chemistry
Course- SSC-505
(Soil Biology and Biochemistry)

Time: Three Hours **Full Mark: 50**

Questions are of value as indicated in the margin

Answer ***any five*** questions.

1. What do you understand by biological interrelationship among the microorganisms in soil? Give a brief note of beneficial associations that exist in soil ecosystem. What is rhizosphere effect? How can it be measured? 3+5+1+1=10

2. How do soil enzyme activities act as bio indicators? How agricultural activities can influence soil microbial activities? Mention the soil enzymes and the reactions involved in nitrogen cycle. 2+5+3=10

3. Write a note on mass production technology for phosphate solubilizing bacteria. Write in brief the race-way or field method of BGA production. Mention the role of *Azotobacter* sp. in crop production. 5+3+2=10

4. Write down the characteristics of humus. Mention the role of lignin in humus formation. How does negative charge develop in humus? 3+4+3=10

5. Write down the effect of temperature, moisture and nature of substrate in decomposition of organic matter in soil. What is the significance of C/N ratio in organic matter decomposition? Write a note on aerobic and anaerobic decomposition of organic matter. 3+3+4=10

6. Define biofertilizer. Mention the limitations of biofertilizer certification system prior to 2006. Write down the quality standard/specification of *Rhizobium*sp. and mycorrhizalbiofertilizers based on the FCO. 1+4+5=10

7. How does vermi-composting differ from conventional composting? Write down the characteristics of earth worms that are considered for their selection in vermicomposting. Outline the steps followed in vermi composting. What are the precautions and care to be taken during preparation of vermi-compost in pit. 2+3+3+2=10

8. What do you mean by Growth Curve? Discuss in brief the different stages of growth of bacteria in growth curve. Listed some growth medium of bacteria. 2+6+2=10
