

**FACULTY OF SCIENCE**  
**M.Sc. III Semester Examination, May/June 2012**

**MICROBIOLOGY**

**Paper III**

(Soil Microbiology)

Time : 3 Hours]

[Max. Marks : 80

*Answer all questions.*

**Section A** — (Marks:  $8 \times 4 = 32$ )

(Short answer type)

1. Rhizosphere
2. Soil fertility and microorganisms
3. Azospirillum
4. Nitrogenous organic matter
5. Symbiotic nitrogen fixing microbes
6. Denitrification
7. Phosphate solubilization
8. Biofertilizer production.

**Section B** — (Marks:  $4 \times 12 = 48$ )

9. (a) Explain edaphic, and biological factors of ecological significance that determine the distribution of soil microorganisms and give suitable examples.  
Or  
(b) Describe physical and chemical soil parameters that influence plant growth.
  10. (a) How is soil humus formed? Explain in detail.  
Or  
(b) Role of microbes in degradation of cellulose, hemicelluloses and lignins in soil with specific examples for each one of them.
  11. (a) Describe the method of nitrogen fixation measurement.  
Or  
(b) Explain the environmental and commercial significance of nitrogen fixation.
  12. (a) Explain in detail about microbe mediated sulphur solubilization with specific examples with the help of a flow diagram.  
Or  
(b) Write about soil phosphorus mineralization with a special note on its biochemistry.
-