

Seat No. : _____

MF-108

March-2018

B.Sc., Sem.-V

SE-305 : Microbiology (Agricultural Microbiology)

Time : 3 Hours]

[Max. Marks : 70

- Instructions :** (1) Draw the figure where ever necessary.
(2) All questions carry equal marks.

1. Explain briefly : (any **two**) **14**
 - (i) How soil aggregates are formed ? Explain the role of microorganisms in formation of soil aggregates.
 - (ii) Draw a layout of soil horizons and give brief account of types of microorganisms found in different soil horizons.
 - (iii) The process of humification and its significance in soil fertility.
 - (iv) The source and the decomposition of organic matter in soil.

2. Explain briefly : (any **two**) **14**
 - (i) Enlist and explain the types of microbial association in soil.
 - (ii) What is a negative association ? Describe the role of microorganism in negative association.
 - (iii) Write brief note on rhizosphere and give its significance.
 - (iv) What's mycorrhizae ? Explain the significance of mycorrhizae.

3. Describe any **two** : **14**
 - (i) The process of nitrogen fixation by symbiotic nitrogen fixing bacteria.
 - (ii) The process of nitrification by nitrifying bacteria.
 - (iii) Enlist various types of biofertilizers. Describe the application methods and the advantages and disadvantages of biofertilizers.
 - (iv) What are biopesticide ? Describe the bacteria as biopesticides.

4. Explain briefly any **two** : **14**
 - (i) The role of bacteria as plant pathogens.
 - (ii) General symptoms of plant disease.
 - (iii) The transmission symptoms and control of plant disease by fungi.
 - (iv) The mode of entry of TMV virus and its process of infection in tobacco plant.

5. Answer in **one** or **two** sentences :

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- (i) What is phyllosphere ?
- (ii) Give an example of syntrophism.
- (iii) What is ammonification ?
- (iv) Name the denitrifying bacteria.
- (v) Name phosphate solubilizing bacteria.
- (vi) Name fungi as plant pathogen.
- (vii) What are biopesticides ?
- (viii) What is immobilization of minerals ?
- (ix) Give an example of PGPR.
- (x) Define Necrosis.
- (xi) What do you mean by soil microenvironment ?
- (xii) Give the name of plant residue decomposers.
- (xiii) Name of the plant pathogen nematodes.
- (xiv) Define phytopathology.