

Seat No. : \_\_\_\_\_

**N17-126**  
**November-2014**  
**B.Sc., Sem.-V**  
**305 : Microbiology**  
**(Agriculture Microbiology)**

**Time : 3 Hours]**

**[Max. Marks : 70**

1. Answer any **two** of the following questions : **14**
  - (A) Describe in brief with significance of the diversity of microorganisms in soil.
  - (B) Explain the term humus, describe its formation.
  - (C) Describe the parameters which are responsible for microbial existence in soil.
  - (D) Explain the role of different microorganisms in the mineralization of organic material in the soil.
  
2. Answer any **two** of the following questions : **14**
  - (A) Enlist the microbial interactions in soil and describe beneficial co-existence of microbes in soil.
  - (B) Describe the antagonistic interactions of microbes in soil.
  - (C) Explain the role of microorganisms found associated with Rhizosphere.
  - (D) Explain the role of VAM fungi and AM fungi with their examples.
  
3. Answer any **two** of the following questions : **14**
  - (A) Explain the term nitrogen fixing and explain the role of bacteria in soil fertility.
  - (B) Explain the term Bio-fertilizer and describe the importance of nitrifying bacteria.
  - (C) Explain the term 'Bio-control'. Describe the merits and demerits of microbial-control of insect pest.
  - (D) Describe the uses and importance of viruses and fungi as bio-pesticides.

4. Answer any **two** of the following questions : **14**
- (A) Describe the modes of microbial plant pathogenesis.
  - (B) Explain the need and uses of disease resistant plant varieties with examples.
  - (C) Describe general symptoms and control measures for bacterial plant diseases.
  - (D) Describe in brief the transmission and control of fungal plant diseases.
5. Answer the following questions in **one** or **two** statements. **14**
- (1) Give biotechnological use of *Bacillus thuringiensis*.
  - (2) Name any disease caused by virus in Tobacco plant.
  - (3) Give examples of two symbiotic nitrogen fixing bacterial species.
  - (4) Name any denitrifying bacterial species.
  - (5) Name any microbe that produces plant hormone.
  - (6) Give example of photosynthetic bacterium used as a bio-fertilizer..
  - (7) Give example of a phosphate solubilizing bio-fertilizer.
  - (8) Name the species of bacterium widely used in transgenic plant production.
  - (9) Give importance of AM fungi.
  - (10) Name any insect pathogenic virus.
  - (11) Name any fungal pesticide.
  - (12) Name the bacterium that possesses leg-haemoglobin.
  - (13) Name any disease caused by pathogenic Basidiomycete fungi.
  - (14) Give example of an antibiotic produced by an Actinomycete species.
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