

**BACHELOR OF SCIENCE (CBCS-2018 COURSE)**  
**T. Y. B. Sc. Sem-VI :SUMMER- 2022**  
**SUBJECT : MICROBIOLOGY : AGRICULTURAL & ENVIRONMENTAL**  
**MICROBIOLOGY**

Day : Thursday  
Date : 14-07-2022

**S-18511-2022**

Time : 11:00 AM-02:00 PM  
Max. Marks : 60

**N. B. :**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat and labelled diagrams **WHEREVER** necessary.

**Q. 1** Attempt **ANY TWO** of the following: **(12)**

- a) Explain the term biological N<sub>2</sub> fixation. Write method for preparation of biofertiliser using symbiotic N<sub>2</sub> fixing bacteria.
- b) Explain the process and mechanism for composting of agricultural waste.
- c) Write causative agent, symptoms, spread and control measures of TMV disease.

**Q. 2** Attempt **ANY TWO** of the following: **(12)**

- a) Define the term bioleaching and describe the *in-situ* bioleaching.
- b) Write the names and role of microbes, the biochemical mechanism involved in biogas production.
- c) Define the term water pollution. Write in brief on various types of water pollutants.

**Q. 3** Attempt **ANY TWO** of the following: **(12)**

- a) Write on citrus cancer disease with reference to following:
  - i) Entry of pathogen.
  - ii) Physiology of the disease.
- b) What are PSB inoculants? Write the method for isolation and propagation of phosphate solubilizing bacteria.
- c) What are mycorrhiza? Write the types, any one method used for isolation and propagation of mycorrhiza.

**Q. 4** Write short note on **ANY FOUR** of the following: **(12)**

- a) Phage markers in study of soil ecology
- b) Bioinoculants
- c) Nitrogenase
- d) Advantages of biogas
- e) Types of marine pollutants

**Q. 5** Attempt **ANY SIX** of the following: **(12)**

- a) Write the mechanism involved in bacterial dissolution of sulphide minerals.
- b) Schematically show microbial succession during composting.
- c) Write control measures to reduce water pollution.
- d) Explain the term-Host parasite relationship.
- e) Draw the diagram for -floating dome digester for biogas production.
- f) Write the working of heap leaching process.
- g) Write the role of biosurfactants in oil degradation and give examples of biosurfactant producing microbes.

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