

Fourth Semester B. Sc. Examination

MICROBIOLOGY

Paper - II

(Applied Microbiology)

Time : Three Hours ]

[ Max. Marks : 50

N. B. : (1) All questions are compulsory and carry equal marks.

(2) Draw diagrams and give examples wherever necessary.

1. Describe the Multiple Tube Fermentation Technique (MTFT) for detection of coliforms in water.

OR

Describe methods of chlorination of drinking water. 10

2. Describe trickling filters and activated sludge process.

OR

Discuss physical, chemical and biological characteristics of sewage. 10

3. (a) Compare chemical pesticides with biopesticides.  $2\frac{1}{2}$

(b) Explain the role of phosphate solubilizing bacteria in soil.  $2\frac{1}{2}$

(c) What are mycorrhizae ? Explain how they benefit plants.  $2\frac{1}{2}$

- ~~(d)~~ Explain the bioleaching of copper with suitable diagram.  $2\frac{1}{2}$

OR

- (e) Give the advantages and limitations of impingement technique of air sampling.  $2\frac{1}{2}$
- (f) Describe the mode of action of 'cry' proteins.  $2\frac{1}{2}$
- (g) Explain Rhizobium as biofertilizer.  $2\frac{1}{2}$
- (h) Explain the bioleaching of uranium with suitable diagram.  $2\frac{1}{2}$

4. ~~(a)~~ Describe the canning process. 5
- ~~(b)~~ Write various methods of pasteurization of food. 5

OR

- ~~(c)~~ Describe various food borne diseases. 5
- ~~(d)~~ Describe various methods of food preservation by using low temperature. 5

5. Solve any ten questions :—

- ~~(i)~~ Which dechlorinating agent is added during collection of chlorinated water sample ?
- ~~(ii)~~ What are faecal streptococci ?
- ~~(iii)~~ What is biological film ?
- ~~(iv)~~ Why are COD values usually greater than BOD values ?

- ~~(v)~~ What is RBC ?
  - ~~(vi)~~ What are aims of waste water treatment ?
  - ~~(vii)~~ What is active sampling ?
  - ~~(viii)~~ What are transgenic plants ? Give one example.
  - ~~(ix)~~ Give the name of bacteria used to control Japanese beetle. *Pae* *Podlisa*.
  - ~~(x)~~ What is the role of Nitrites and Nitrates in the meat preservation ?
  - ~~(xi)~~ What is the full form of 'GRAS' with respect to chemical preservatives used in the food ?
  - ~~(xii)~~ Name the preservatives used in Jam and Jellys.
- 1x10=10