

M.Sc. (Part-I) Semester-I (C.B.C.S. Scheme) Examination

MICROBIOLOGY

(Environmental Microbiology)

Paper-IV

Time : Three Hours]

[Maximum Marks : 80

- Note :—** (1) All questions are compulsory.
(2) All questions carry equal marks.
(3) Draw diagrams wherever necessary.

1. Discuss concept of habitat in biosphere, food chain, ecosystem and ecosystem management.

16

OR

- (a) Describe renewable source of energy and fuel using microorganisms. 8
(b) Explain role of bacterial technology in achieving sustainable development. 8
2. Describe symbiotic and non-symbiotic nitrogen fixation with suitable example of each type. 16

OR

- (a) Explain energy input/output ratio of nitrogen fixation process in crop production. 8
(b) Describe nitrogen cycle in brief. 8
3. Explain significance of 'p' element in living system and discuss occurrence and solubilization of phosphorous in nature. 16

OR

- (a) Describe cellulose and lignin degradation in soil along with microorganisms. 8
(b) Describe biochemistry of Sulfate reduction. 8
4. Explain biotransformation of pesticides, mercury, arsenic compounds and lead. 16

OR

- (a) Describe microbiology and biochemistry of metal transformation. 8
(b) Discuss iron oxidizing bacteria. 8
5. Explain concept of biodeterioration and describe biodeterioration of pharmaceutical products and wood. 16

OR

- (a) Discuss techniques of bioleaching. 8
(b) Describe applications of bacterial leaching. 8

