

AQ-916

**M.Sc. (Part—I) Semester—II (CBCS Scheme)
Examination**

MICROBIOLOGY

(Environmental Microbiology and Extremophiles)

Paper—VIII (2 MCB 4)

Time : Three Hours]

[Maximum Marks : 80

Note :— (1) **ALL** questions are compulsory and carry equal marks.

(2) Draw neat labelled diagrams and give suitable examples wherever necessary.

1. Define recalcitrant organic compounds and explain its effect due to their presence in natural ecosystem.
16

OR

Explain biodegradation of recalcitrant and toxic chemicals with suitable examples. 16

2. What are the microbial changes induced by organic and inorganic pollutants during eutrophication ? 16

OR

Write notes on the following :

- (a) Role of phosphorus in eutrophication. 8
- (b) Control of eutrophication. 8

3. (a) What are barophiles and osmophiles ? Give its ecological significance. 8

- (b) Write a note on applications of extremophiles. 8

OR

- (c) Give the mechanism of adoption of acidophiles. 8

- (d) Comment on membrane variation in halophiles. 8

4. Explain a water treatment process in detail. 16

OR

Describe the concept of indicator organisms and add a note on standards and criteria for indicators. 16

5. Take a detailed account of biochemistry of nitrate reduction with a special reference to waste treatment. 16

OR

Write notes on the following :

- (a) Oxidation pond and stabilization pond. 8
(b) Principles of anaerobic digestion. 8