Exam.Code:0003
Sub. Code: 0278

1127

B.A./B.Sc. (General) Third Semester

Industrial Microbiology

IMB-301: Environmental Microbiology

Time allowed: 3 Hours Max. Marks: 33

***NOTE**: Attempt <u>five</u> questions in all, including Question No. I which is compulsory and selecting one question from each Unit.*

*x-x-x*

I. Attempt the following:-

a) Neutralism (1½)

b) Ammonification (2)

c) Xenobiotic compounds (1½)

d) Significance of physiological adaptations (2)

## UNIT – I

II. a) Discuss environment induced Genetic adaptation in microbes

b) Briefly describe microbial population of water with examples and their significance (3½ ,3)

III. a) Write a note on microbial composition of air and their relation to the environment

b) What are the environment factors which are responsible for various changes in microbial population (3½ ,3)

## UNIT – II

IV. a) Describe the mechanism of microbial mobilization and immobilization of carbon in biosphere?

b) Write a note on experiments of sulphur cycle? (3½,3)

V. a) What is the significance of nitrogen cycle with respect to agriculture?

b) Describe tropic relationships with example. (3½,5)

## UNIT – III

VI. a) What is the significance of plant-microbe interaction? Explain with example

b) Write a note on mutualism. (4,2½)

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VII. a) Why microbe-microbe interaction is important in the biosphere?

b) Discuss briefly the mechanism of parasitism with example? (4,2½)

## UNIT – IV

VIII. a) Discuss the mechanism of degradation and importance of degradative plasmids

b) Define the properties of xenobiotic compounds which make them difficult target for natural degradation? (4,2½)

IX. a) What is the pathway followed for bioremediation of contaminated sites?

b) Discuss the derivative pathway of aliphatic hydrocarbons? (4,2½)

*x-x-x*