2122
B.A./B.Sc. (General) Third Semester
Industrial Microbiology
IMB-301: Environmental Microbiology

Time allowed: 3 Hours   Max. Marks: 33

NOTE: Attempt __five__ questions in all, including Question No. I which is compulsory and selecting one question from each Unit.

x-x-x

1.   Answer the following:
   a) Denitrification
   b) Biosphere
   c) Zooplanktons
   d) Benthos
   e) Pollutants   (1x5=5)

UNIT-I

2.   a) What do you know about soil as a habitat for microbes?
   b) Discuss the methods of generating physiological mutations in microbes.   ($3\frac{1}{2}+3\frac{1}{2}=7$)

3.   a) Describe the microbial flora of fresh water.
   b) What are the adaptations made in the microbes to survive in the air? ($3\frac{1}{2}+3\frac{1}{2}=7$)

UNIT-II

4.   a) How nitrogen cycle is playing a significant role in nature? Discuss the role of microbes
   b) What do you know about the recycling of minerals in nature? Explain with a suitable example.   ($3\frac{1}{2}+3\frac{1}{2}=7$)

5.   Explain the following:
   i)   Recycling of Oxygen in nature
   ii)   Hydrogen cycle in the environment   ($3\frac{1}{2}+3\frac{1}{2}=7$)

UNIT-III

6.   a) Which microbial interactions are prevalent in the environment? Explain with suitable examples.
   b) Give a comparison of synergism and commensalism prevalent in nature.   ($3\frac{1}{2}+3\frac{1}{2}=7$)

7.   a) What type of interactions take place in plants and microorganisms? Discuss with appropriate examples.
   b) Discuss the negative animal and microbial interactions prevalent in nature.   ($3\frac{1}{2}+3\frac{1}{2}=7$)

UNIT-IV

8.   a) Describe the biodegradation of the xenobiotic compounds. How they are posing threat to the environment?
   b) How microbes are helpful in improving the contaminated soil.   ($3\frac{1}{2}+3\frac{1}{2}=7$)

9.   Write notes on the following:
   i)   Bioremediation and its significance
   ii)   Degradative plasmids   ($3\frac{1}{2}+3\frac{1}{2}=7$)

x-x-x