

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATIONS-2024

M. Tech. Ist Semester (BT)

COURSE CODE (CREDITS):18M1WBT134

MAX. MARKS: 15

COURSE NAME: **Microbial Ecology**

COURSE INSTRUCTORS: **Dr. Ashok Kumar Nadda**

MAX. TIME: 1 Hour

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

Section I

Q1. Answer the following questions.

- a) What is the difference between an autotroph and a heterotroph? [Mark 1]
- b) What is the difference between a habitat and a niche? [Mark 1]
- c) Give two examples of iron oxidizing and sulphur reducing bacteria. [Mark 1]
- d) What are the high and low nutrient environments commonly found in nature? [Mark 1]
- e) What is Neuston layer and how the environmental factor affects the microbial growth in this layer? [Mark 1]

Section II

Q 2 Discuss the basic characteristics of archaebacteria? Classify the archaebacteria into different phylums? [Mark 2.5]

Q 3 What is the nitrogen cycle and sulphur cycle, and how do microbes contribute to it? [Mark 2.5]

Section III

Q 4 Discuss the various adaptation mechanisms of thermophiles and organic solvent tolerant bacteria towards extreme environments. [Mark 2.5]

Q 5 What are biofilms and microbial mats? Discuss the various steps of development of biofilm with the help of suitable diagram. [Mark 2.5]