

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST - I EXAMINATIONS-2022

M.Sc - I Semester (BT)

COURSE CODE (CREDITS): 20MS1BT114 (2)

MAX. MARKS: 15

COURSE NAME: MICROBIOLOGY

MAX. TIME: 1 Hour

COURSE INSTRUCTORS: Dr. Rahul Shrivastava

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

Q1. You went on trek to an unexplored region of Himachal Pradesh. To study the micro flora of the region you collected water and soil samples from the region. Design an experiment to culture the unknown bacteria present in the samples, and then to study its nutritional requirements. [3]

Q2. Starting with 12 cells/ml in rich nutrient medium, with 2 hour lag phase and a 30 min generation time, how many cells would there be in 1 liter of the culture after i.) 2 hour ii) 4 hour iii) after 4 hour if two of the initial 10 cells were dead at zero time. [3]

Q3. Give reasons FOR or AGAINST the following statements: (ANY THREE) [1 X 3 = 3]

- A. The 'pour plate' is a better technique than 'streak plate' methods to obtain pure culture of a bacterial culture.
- B. Mid-log phase cultures are usually used for testing of antimicrobial (chemical / physical) agents
- C. Lag phase culture is characterized by no bacterial multiplication as the cells have no metabolic activity during the phase.
- D. Selective media inhibits growth of selected microorganisms.

Q4. Differentiate between 'Direct' and 'indirect' methods of microbial growth measurement with examples. [3]

Q5. Discuss important contributions made by Louis Pasteur, which led to the development of Industrial Microbiology. [3]