

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -2 EXAMINATION- October 2024

M.Sc. - I Semester (BT)

COURSE CODE (CREDITS): 20MS1BT114 (2)

MAX. MARKS: 25

COURSE NAME: MICROBIOLOGY

COURSE INSTRUCTORS: Dr. Rahul Shrivastava

MAX. TIME: 1 Hour 30 Minutes

Note: (a) All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems (c) calculators are NOT ALLOWED

Q. No.	Question	Marks
Q1.	Starting with 12 cells/ml in a rich nutrient medium, with 1-hour lag phase and a 20 min generation time, how many cells would there be in 1 liter of the culture after i.) 1 hour ii) 2 hour iii) after 2 hours if two of the initial 10 cells were dead at zero time.	[1.5 X 3 = 4.5]
Q2.	Correct the following WRONG STATEMENTS and provide suitable justification for your answer: a. Heat-sensitive culture media and antibiotic solutions are sterilized by Autoclaving. b. Silver chloride is used to kill algae in pools and fish tanks. c. Stationary phase cultures are usually used for testing of antimicrobial (chemical / physical) agents. d. Enrichment media inhibits growth of selected microorganisms.	[1.5 X 4 = 6]
Q3.	Compare the 'Direct' and 'Indirect' methods of microbial growth measurement with examples. Discuss in detail any one 'Direct' and one 'Indirect' method you would choose for bacterial growth measurements.	[2+2+2=6]
Q4.	You need to design and set up an operation theatre of a hospital. List all possible physical and chemical microbial control methods, along with their mechanism of action you would use to maintain aseptic conditions inside the operation theatre to minimize the risk of hospital-acquired infections during surgery.	[6]
Q5.	Differentiate between facultative aerobes and facultative anaerobes. Speculate with reason which of them may be used for Biogas Production.	[2.5]