

COURSE CODE (CREDITS): 20MS1BT114 (2)

MAX. MARKS: 15

COURSE NAME: MICROBIOLOGY

COURSE INSTRUCTORS: Dr. Rahul Shrivastava

MAX. TIME: 1 Hour

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*Note: (a) All questions are compulsory. (b) Marks are indicated against each question in square brackets.*

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Q1. Draw labeled diagrams of Gram-negative and Gram-positive cell walls. Give important differences between Gram-negative and Gram-positive bacteria. [3]

Q2. *Case Study:* Milk is pasteurized, followed by freezing at low temperatures to make milk ice creams. Does the process of pasteurization followed by freezing kills all microorganisms in the milk? Do milk ice creams pose a health threat of microbial infection to human beings? Comment on both statements providing suitable justification to your answer. [3]

Q3. Discuss Koch's postulates with diagrams; comment on its significance in the development of medical microbiology. [4]

Q4. *Experimental Design:* On a trip to an unexplored region of Himachal Pradesh, you collected water and soil samples to study the micro flora (microbes) of the region. Provide an experimental design which you would use to culture the unknown bacterial species in the samples, followed by study of amino acid and vitamin requirements of the bacteria obtained. Provide flow-chart or diagram if required. [5]