

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATIONS-2024

M.Sc. BT/BI-2nd Semester

COURSE CODE (CREDITS): **21MS1MB212**

MAX. MARKS: 25

COURSE NAME: **Microbial Genetics**

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

MAX. TIME: 1 Hour 30 Minutes

Note: (a) All questions are compulsory.

(b) Marks are indicated against each question in square brackets.

(c) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Section I

Q1 Very short answers type questions. Each question is carrying one mark.

- (a) What are hydrogen and sulphur oxidizers? Give their examples. [Marks 1]
- (b) Explain why most lithotrophs, with the exception of those that oxidize H_2 , must expend energy to make the reduced cofactors for biosynthesis. [Marks 1]
- (c) What is the principle of diauxic growth in bacteria. [Marks 1]
- (d) Write the autoinducers molecules present in Gram positive and Gram Negative bacteria responsible for quorum sensing. [Marks 1]
- (e) What are annamox bacteria? Give their examples. . [Marks 1]

Section II

Q 2 Discuss the mechanism quorum sensing. Write the details of various molecules secreted by gram positive and Gram negative bacteria for cell to cell communication. [Marks 3]

Q 3 What are the four different types of covid-19 vaccines? How do these work to defend against Covid? [Marks 3]

Q 4 Explain diagrammatically the process of butyric acid fermentation. What is the role of various microbes in the fermentation of butyric acid. [Marks 3]

Q 5 Discuss the various steps in the germination of endospore? Comment on the activation and germination of an endospore into vegetative cell. [Marks 3]

Section III

Q 6 Discuss the role of Acetyl-CoA Carboxylase in the biosynthesis of fatty acids. Illustrate the key step catalysed by Acetyl-CoA Carboxylase during fatty acid synthesis. Write the basic steps involved in the synthesis of fatty acids. [Marks 4]

Q 7 What are the various techniques of reverse genetics? Elaborate their applications. [Marks 4]

JUIT TEST-2 EXAMINATION-APRIL-2024