

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATIONS- 2026

B. Tech.-IV Semester (Biotechnology)

COURSE CODE (CREDITS): 25B11BT412 (03)

MAX. MARKS: 15

COURSE NAME: Microbiology

COURSE INSTRUCTORS: Ashok Kumar Nadda

MAX. TIME: 1 Hour

Note: (a) All questions are compulsory.

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

Q.No	Question	COs	Marks
Section I			
Q1	(a) State the contributions of Louis Pasteur and Edward Jenner to the field of microbiology.	CO I	0.5
	(b) When we have to transfer microbial culture from one place to another, what type of medium we can use? Give examples.	COIII	0.5
	(c) Name the type and example of a culture medium used for the growth of <i>Mycobacterium tuberculosis</i> .	COIII	0.5
	d) How does the peptidoglycan layer contribute to the structural integrity of the cell?	COII	0.5
	(e) Name any two methods used to obtain synchronous cultures.	COII	0.5
Section II			
Q2	How Louis Pasteur's disproved the theory of spontaneous generation using swan-neck flask experiment. Explain diagrammatically.	COI	1.5
Q3	Differentiate between selective and differential media used for the growth of microorganisms. Give example of the microbes	COII	1.5

	cultivated in these types of media.		
Q 4	With the help of a suitable diagram explain the structure of peptidoglycan and its monomeric units. What is the function of teichoic acid in gram-positive bacteria?	COII	1.5
Q 5	How can we isolate a pure culture from given soil sample? Explain with the help of suitable diagram.	COII	1.5
Q 6	What are the various factors that affect the growth of microorganisms? How can we grow the anaerobic microbes in the laboratory?	COIII	1.5
Section III			
Q 7	The growth of microbes can be measured using both direct and indirect methods. Which method is suitable for the growth of filamentous bacteria and fungi and why. Briefly explain one direct and one indirect method used for the measurement of growth of microbes.	COII	2.5
Q 8	During the bacterial growth when the cells will be most susceptible towards the growth of antibiotics? How can we measure the number of cells in a culture media in death phase?	COIII	2.5
Total marks			15