

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)**

**CLASS: MSc
BRANCH: BIOTECH**

**SEMESTER : I
SESSION : MO/2024**

SUBJECT: BT403 APPLIED MICROBIOLOGY

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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Q.1(a)	Compare the different types of functional culture media. Illustrate the importance of 'Micrometry'	[5]	CO CO1; CO6	BL 2,3, 4
Q.1(b)	Categorize the physical characteristics considered in wastewater analysis. Select and explain <u>two</u> approaches used for identification of microorganisms	[5]		
Q.2(a)	Classify the transport mechanisms of nutrient uptake by microorganisms giving <u>one</u> suitable example in each case	[5]	CO2; CO6	4,5
Q.2(b)	Compare the different microbial culture systems. Evaluate the role of chemical agents which control microbial growth giving <u>two</u> examples	[5]		
Q.3(a)	Assess the significance of any <u>one</u> air sampling technique. Analyze any <u>one</u> method used for bacteriological/sanitary analysis of water	[5]	CO3; CO6	2,4,5
Q.3(b)	Classify and explain the different steps of wastewater treatment. Categorize the types of phytoremediation.	[5]		
Q.4(a)	Interpret the role of microorganisms as biofertilizers giving <u>one</u> example. Illustrate microbial biodeterioration of agricultural products	[5]	CO4; CO6	2,3,5
Q.4(b)	Determine the intrinsic factors which affect microbial growth in food. Evaluate any <u>two</u> industrially important microorganisms	[5]		
Q.5(a)	Distinguish between exotoxins and endotoxins with suitable examples. Categorize vaccines and interpret their importance	[5]	CO5; CO6	4,5
Q.5(b)	Assess the 'Microbial Adherence' accomplished in host-pathogen interaction during the process of infection giving <u>two</u> suitable examples. Determine the mechanism of action of any <u>one</u> antimicrobial agent	[5]		

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