

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

**CLASS:** MSc/Pre-Phd  
**BRANCH:** Biotech

**SEMESTER :** I  
**SESSION :** MO/2023

**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.
- 

			CO	BL
Q.1(a)	Compare the different types of culture media. Select and explain any <u>two</u> molecular approaches used for identification of microorganisms	[5]	CO1; CO6	2,4,5
Q.1(b)	Categorize the chemical characteristics considered in wastewater analysis. Evaluate any <u>two</u> techniques used for measurement of microbial growth	[5]		
Q.2(a)	Analyze the effect of oxygen concentration on microbial growth. Interpret the action of any <u>two</u> physical agents which control microbial growth.	[5]	CO2; CO6	4,5
Q.2(b)	Distinguish between Batch and Continuous microbial culture systems. Determine any <u>two</u> mechanisms of nutrient uptake by microorganisms	[5]		
Q.3(a)	Categorize the allergic disorders caused by air microflora. Assess the significance of any <u>two</u> techniques used for air sampling	[5]	CO3; CO6	2,4,5
Q.3(b)	Classify and explain the different steps of wastewater treatment. Analyze the possible outcomes of toxic compounds upon biodegradation	[5]		
Q.4(a)	Interpret the basic steps involved in establishment of beneficial plant-microbe symbiosis giving <u>one</u> example. Choose any <u>two</u> microorganisms responsible for biodeterioration of agricultural products	[5]	CO4; CO6	1,3,5
Q.4(b)	Select the extrinsic factors which affect microbial growth in food. Assess the importance of microbial production of Primary and Secondary metabolites with suitable examples	[5]		
Q.5(a)	Categorize the steps accomplished in host-pathogen interaction during the process of infection giving suitable examples. Determine the mechanism of action of any <u>one</u> antimicrobial agent	[5]	CO5; CO6	4,5
Q.5(b)	Classify bacterial toxins. Interpret the importance of vaccines and classify them	[5]		

:::::24/11/2023 E:::::