

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI  
(END SEMESTER EXAMINATION MO 2022)

CLASS: M.Sc./PRE-PHD  
BRANCH: BIOTECHNOLOGY

SEMESTER : I  
SESSION : MO-2022

SUBJECT: BT403 APPLIED MICROBIOLOGY

TIME: 03 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. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates

			CO	PO	Bloom's Taxonomy
Q.1(a)	Classify the different types of culture media used for microbial growth	[2]	CO1; CO6	PO2; PO3; PO4	2,4,5
Q.1(b)	Select and describe any <u>two</u> advanced approaches used for identification of microorganisms	[3]			
Q.1(c)	Evaluate the different techniques used for measurement of microbial growth	[5]			
Q.2(a)	Compare the different microbial culture systems	[2]	CO2;	PO1;	2,4,5
Q.2(b)	Categorize and explain the role of physical agents which control microbial growth	[3]	CO6	PO2; PO3; PO4	
Q.2(c)	Select and explain with diagram any <u>one</u> active and <u>one</u> passive transport mechanism of nutrient uptake by microorganisms	[5]			
Q.3(a)	Compare any <u>two</u> techniques used for air sampling	[2]	CO3;	PO1-	2,4,5
Q.3(b)	Select and explain any <u>one</u> method used for bacteriological analysis of water	[3]	CO6	PO5	
Q.3(c)	Evaluate the factors one must consider to stimulate the microbial degradation of pollutants. Categorize the types of phytoremediation.	[5]			
Q.4(a)	Illustrate the structural features of Mycorrhiza and their role as biofertilizers	[2]	CO4; CO6	PO1- PO5	3,4,5
Q.4(b)	Distinguish between Primary and Secondary metabolites with suitable examples	[3]			
Q.4(c)	Categorize the intrinsic factors responsible for microbial growth in food. Select and describe any <u>two</u> industrially important microorganisms	[5]			
Q.5(a)	Distinguish between exotoxins and endotoxins with suitable examples	[2]	CO5; CO6	PO1- PO5	2,4,5
Q.5(b)	Categorize vaccines and explain their role to improve public health	[3]			
Q.5(c)	Compare 'Passive' and 'Active' penetration of pathogen into the host body with suitable examples. Select and describe any <u>one</u> antimicrobial agent	[5]			

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