

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

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

SEMESTER : I
SESSION : MO/2022

SUBJECT: BE511 ENVIRONMENTAL BIOTECHNOLOGY
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)	Determine any two strategies of environmental planning for sustainable development using biotechnology	[2]	CO1; CO5	PO2; PO3;	2,4,5
Q.1(b)	Select and describe the in-situ biodiversity conservation strategies with suitable examples	[3]		PO4	
Q.1(c)	Compare the role of 'bioindicators' and 'biomarkers' in monitoring pollution with suitable examples	[5]			
Q.2(a)	Evaluate the role of Food to Microorganism (F/M) ratio for continuous system in biological wastewater treatment process	[2]	CO2; CO5	PO1; PO2;	2,4,5
Q.2(b)	Classify the steps of anaerobic sludge digestion process and estimate its significance	[3]		PO3; PO4	
Q.2(c)	Select and explain one aerobic and one anaerobic reactor used in biological treatment of wastewater	[5]			
Q.3(a)	Categorize the components of 'waste hierarchy' and describe its importance with a suitable example	[2]	CO2; CO5	PO1- PO5	2,4,5
Q.3(b)	Classify and explain the steps adopted for Biomedical waste management	[3]			
Q.3(c)	Select and describe any two methods of plastic recycling which are in use for human benefit	[5]			
Q.4(a)	Determine the role of 'superbug' in waste management giving a suitable example	[2]	CO3; CO5	PO1- PO5	3,4,5
Q.4(b)	Evaluate the role of 'Biosensors' and in pollution monitoring with examples	[3]			
Q.4(c)	Differentiate between in-situ and ex-situ bioremediation with one suitable example in each case. Classify Phytoremediation	[5]			
Q.5(a)	Assess the role of 'Vermiculture' in organic farming	[2]	CO4;	PO1-	3,4,5
Q.5(b)	Determine the working principle of 'Microbial fuel cell' and evaluate its importance	[3]	CO5	PO5	
Q.5(c)	Compare and describe the different generations of biofuels with suitable examples in each case	[5]			

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