LOYOLA COLLEGE (AUTONOMOUS) CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – **BIOTECHNOLOGY**

THIRD SEMESTER – **NOVEMBER 2024**

PBT3ME01 – ENVIRONMENTAL BIOTECHNOLOGY

Date: 19-11-2024 Dept. No. Max. : 100 Marks

Time: 01:00 pm-04:00 pm

	SECTION A – K1 (CO1)
	Answer ALL the questions **(5 x 1 = 5)**
1	**Choose the best option**
a)	Acid rain is a result of i) Excess amount CO_2 ii) Excess amount of NH_3 iii) Excess amount of SO_2 and NO_2 iv) Excess carbon monoxide
b)	To remove temporary hardness of water -------- is used. i) $MgCl_2$ ii) $CaCl_2$ iii) $Ca(OH)_2$ iv) $Mg(HCO_3)$
c)	Which of the following is a biofuel? i) Diesel ii) Gasoline iii) Bioethanol iv)Natural Gas
d)	The common treatment method for dye industry effluents is i) Filtration ii) Electrolysis iii) Carbon adsorption iv) Coagulation-flocculation
e)	The chemical that is commonly found in plastics and is a concern for human health is i) BPA ii) DDT iii) PCB iv) Asbestos
	SECTION A – K2 (CO1)
	Answer ALL the questions **(5 x 1 = 5)**
2	**Answer in one or two sentences**
a)	What is genetic diversity?
b)	Write the role of bioindicators in environmental monitoring.
c)	Classify the types of bioremediation.
d)	List out waste reduction methods are used in the petroleum industry
e)	What is the Cerrado region known for in terms of agriculture?
	SECTION B – K3 (CO2)
	Answer any THREE of the following **(3 x 10 = 30)**
3	Elucidate the role of microorganisms in biogeochemical cycle.
4	Explain how vehicular pollution contributes to air pollution.
5	Discuss the potential of biosurfactants in industrial applications compared to synthetic surfactants.
6	How would you apply waste reduction strategies to the dairy industry to minimize environmental pollution?
7	Discuss on the effect of climate in Florida.

	SECTION C – K4 (CO3)
	Answer any TWO of the following **(2 x 12.5 = 25)**
8	Describe with examples the various biotic interactions.
9	Illustrate anaerobic water treatment processes.
10	Demonstrate how sulphur dioxide pollution can be reduced using available technologies
11	Evaluate the role of natural selection in maintaining biodiversity in the Galápagos Islands.
	SECTION D – K5 (CO4)
	Answer any ONE of the following **(1 x 15 = 15)**
12	Explain the intrinsic mechanism of plant growth promoting rhizobia.
13	Examine the process of bioleaching and its impact on metal extraction compared to traditional mining.
	SECTION E – K6 (CO5)
	Answer any ONE of the following **(1 x 20 = 20)**
14	Critique the role of "superbugs" in the degradation of xenobiotics and oil spills, considering possible ecological risks.
15	Evaluate the efficiency of effluent treatment technologies used in the dye industry.

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