

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**M.Sc. DEGREE EXAMINATION – BIOTECHNOLOGY****FIRST SEMESTER – NOVEMBER 2022****PBT1MC03 – APPLIED MICROBIOLOGY**

Date: 28-11-2022

Dept. No.

Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

SECTION A**Answer ALL the questions**

1	Choose the best option	(5 x 1 = 5)	
a)	The photoreceptor regulating phototropism in higher plants is called a) phytochrome b) blue/UV-A photoreceptor c) cytochrome d) UV-B photoreceptor	K1	CO1
b)	Higher concentration of nitrate in surface water can stimulate the rapid growth of a) algae b) bacteria c) fungi d) virus	K1	CO1
c)	Fluorescence In Situ Hybridization techniques are used for the detection of a) DNA & RNA sequences b) prions c) virions d) Fungi	K1	CO1
d)	Multidrug-resistant tuberculosis (MDR-TB) are resistant to at least a) isoniazid. b) isoniazid and rifampicin. c) isoniazid, rifampicin, and any fluoroquinolone. d) isoniazid, rifampicin, any fluoroquinolone, and one second- line drug.	K1	CO1
e)	What is the use of mass spectroscopy? a) Determination of molecule weight b) Elucidating the chemical structures of molecules c) A and B d) None of the above	K1	CO1
2	Answer in one or two sentences	(5 x 1 = 5)	
a)	Summarize bio fungicides with examples	K2	CO1
b)	What is benthos and where are they found?	K2	CO1
c)	List the characteristics of psychrophiles.	K2	CO1
d)	Classify β lactamases and ESBL genes.	K2	CO1
e)	What are secondary metabolites?	K2	CO1
SECTION B			
	Answer any THREE of the following in 500 words	(3 x 10 = 30)	
3	Discuss nutrient cycles as biogeochemical cycles.	K3	CO2
4	Illustrate the importance of bioassays for evaluating water quality.	K3	CO2
5	Explain the method to analyse single cells or particles as they flow past single or multiple lasers while suspended in a buffered salt-based solution.	K3	CO2
6	Explain the action of antiviral and antiprotozoan drugs.	K3	CO2
7	Analyse the importance of probiotics on growth and development using Zebra fish model.	K3	CO2

SECTION C**Answer any TWO of the following in 500 words****(2 x 12.5 = 25)**

8	Compare Nitrogen fixing bacteria and synthetic bacteria in improving soil fertility.	K4	CO3
9	Demonstrate intercellular communication in biofilm cells.	K4	CO3
10	Categorise and explain the types of <i>insitu</i> bioremediation.	K4	CO3
11	Assess the utilisation of LAMP to detect food allergens.	K4	CO3

SECTION D**Answer any ONE of the following in 1000 words****(1 x 15 = 15)**

12	a) Summarize biological cycling components of sulphur and potassium. b) Write a note on biopesticides and their advantages.	K5	CO4
13	Discuss the methods that could be adapted if a liquid medium is provided for air sampling.	K5	CO4

Answer any ONE of the following in 1000 words**(1 x 20 = 20)**

14	Elaborate on the methods to understand the microbial diversity in a given environment using a culture - independent molecular methods.	K6	CO5
15	Compile the mechanisms of antibiotic resistance.	K6	CO5

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