LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – **ADVANCED ZOOLOGY AND BIOTECHNOLOGY**

THIRD SEMESTER – **NOVEMBER 2022**

UPB 3401 – APPLIED MICROBIOLOGY

Date: 01-12-2022 Dept. No. Max. : 100 Marks

Time: 09:00 AM - 12:00 NOON

	SECTION A		(20 marks)
Answer ALL the Questions			
1.	**Choose the correct answer**		**(5 x 1 = 5)**
a)	Which is not a part of the three domain classification by Woese i) Bacteria ii) Archaea iii) Eukarya iv) Protozoa	K1	CO1
b)	Bacterial growth measurement is done by i) Streak plate ii) Standard plate iii) pour plate iv) spread plate	K1	CO1
c)	Robertson's Cooked Meat is an example for i) Anaerobic media ii) Differential media iii) Transport media iv) Indicator media	K1	CO1
d)	MUST is associated with i) Cheese production ii) Wine production iii) Both iv) None of the above	K1	CO1
e)	*Rhizobium* and *Azospirillum* are examples of i) N_2 fixers ii) P solubilizers iii) P mobilizers iv) Zn fixers	K1	CO1
2.	**Complete the following sentences**		**(5 x 1 = 5)**
a)	…… is not included in the Five Kingdom System of Classification.	K1	CO1
b)	The transfer of free DNA released from a donor bacterium into the extracellular environment is called ……	K1	CO1
c)	In fermenters, with metal to metal joints the suitable seal is …….	K1	CO1
d)	……..an example of recalcitrants.	K1	CO1
e)	Mineral formation within the cell of microorganisms is known as ……	K1	CO1
3.	**Answer the following, each within 50 words**		**(5 x 2 = 10)**
a)	Compare diplococci with streptococci.	K2	CO1
b)	Write note on capsule.	K2	CO1
c)	Brief note on downstream processing.	K2	CO1
d)	Comment on antibiotics.	K2	CO1
e)	Differentiate *in situ* bioremediation from *ex situ* bioremediation.	K2	CO1

	SECTION B		
Answer any TWO of the following, each within 500 words. Draw diagrams / flowcharts wherever necessary.			**(2 x 10 = 20)**
4.	Give the general characteristics of algae.	K3	CO2
5.	Explain the different phases of bacterial growth curve.	K3	CO2
6.	Write notes on any eight biopolymers.	K3	CO2
7.	Briefly discuss about the waste water treatment.	K3	CO2
	SECTION C		
Answer any TWO of the following, each within 500 words. Draw diagrams / flowcharts wherever necessary.			**(2 x 10 = 20)**
8.	Describe briefly the five kingdom system of classification.	K4	CO3
9.	Write briefly on the removal of insoluble waste and product isolation stages of downstream processing.	K4	CO3
10.	Give a brief account on biopesticides.	K4	CO3
11.	Discuss the process of biomining and add note on its environmental risks.	K4	CO3

SECTION D			
Answer any ONE of the following within 1000 words. Draw diagrams / flowcharts wherever necessary.			**(1 x 20 = 20)**
12.	Present the general characteristics and classification of fungi.	K5	CO4
13.	Explain the basic structure of bacterial cell with its various components.	K5	CO4
SECTION E			
Answer any ONE of the following within 1000 words. Draw diagrams / flowcharts wherever necessary.			**(1 x 20 = 20)**
14.	Discuss in detail the microbial production citric acid and its applications.	K6	CO5
15.	Illustrate the major types of biofuels with their pros and cons.	K6	CO5

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