## LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



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

FIRST SEMESTER – **APRIL 2023** 

## **PBT1MC03 – APPLIED MICROBIOLOGY**

Dept. No. Date: 03-05-2023 Time: 09:00 AM - 12:00 NOON

Max. : 100 Marks

Answer ALL the questions1Choose the best option(5 x 1 = 5)1Fresh air contains approximatelypercent carbon dioxide bya)a) 0.01b) 2c) 5a)0.03K11EnsembleK1b)a)Cytoplasam of bacteriab)b)a)Cytoplasam of bacteriab)Extracellular polymeric substancesK1c)Muramic acidd)d)Myperthermophilic organisms that grow in highly acidic (pH2) habitats belong to the two groupsK1c)Protists and Mossd)c)Protists and Mossd)c)Protists and Mossd)d)Large regimented barrel shapedd)Large regimented barrel shapedd)Large regimented barrel shapedd)Large regimented barrel shapedd)Uhich of the following is not true about High pressure liquid chromatography a) It requires high pressure for the separation of the specious c) It is performed in columns d) It has high sensitivityc)Answer in one or two sentencesd)Uhat is leghemoglobin?k2CO1c)What is leghemoglobin?d)K2d)Utartine the role of phytoplankton in the food chain.d)K2d)It negative about High pressure for the separation?d)K2d)CO1d)Mat is leghemoglobin?d)K2d)CO1d)Large regi	SECTION A						
a)       Fresh air contains approximately percent carbon dioxide by       k1       CO1         a)       0.01       b) 2       c) 5       d) 0.03       K1       CO1         The major component of the biofilm are       b)       a)       Cytoplasam of bacteria       b) Extracellular polymeric substances       K1       CO1         e)       A)       Cytoplasam of bacteria       b) Extracellular polymeric substances       K1       CO1         e)       Hyperthermophilic organisms that grow in highly acidic (pH2) habitats belong to the two groups       a) Cyanobacteria and Diatoms       b) Liverworts and Yeasts       K1       CO1         c)       Protists and Moss       d) Eubacteria and Archaca       K1       CO1         d)       A)       Club shaped glycoprotein spikes protrude through a lipid bilayer       k1       CO1         d)       An icosahedral large ploomorphic virus       d)       Large regimented barrel shaped       K1       CO1         e)       b)       Thre is no need to vaporise the samples       K1       CO1         c)       M it has high sensitivity       X2       CO1       CO1         d)       Large regimented barrel shaped       K1       CO1         e)       b)       Thre on oned to vaporise the samples       K1							
a)       volume       K1       CO1         a)       0.01       b)       2       c)       5       d)       0.03       C1         The major component of the biofilm are       b)       a)       Cytoplasam of bacteria       b)       Extracellular polymeric substances       K1       CO1         c)       Muramic acid       d)       Sterol       K1       CO1         e)       a)       Cytoplasam of bacteria       b)       Extracellular polymeric substances       K1       CO1         c)       Muramic acid       d)       Sterol       K1       CO1         wo groups       a)       Cyanobacteria and Diatoms       b)       Liverworts and Yeasts       K1       CO1         c)       Protists and Moss       d)       Eubacteria and Archaea       K1       CO1         d)       b)       An icosahedral structure with an envelope       K1       CO1       CO1       c)       An icosahedral large pleomorphic virus       K1       CO1         d)       Large regimented barrel shaped       K1       CO1       CO1       c)       It is performed in columns       K1       CO1         c)       It sperformed in columns       K1       K1       CO1       CO1 <td< th=""><th>1</th><th colspan="4"></th></td<>	1						
The major component of the biofilm are       K1       CO1         a)       Cytoplasam of bacteria       b) Extracellular polymeric substances       K1       CO1         Hyperthermophilic organisms that grow in highly acidic (pH2) habitats belong to the       two groups       K1       CO1         c)       Protists and Moss       b) Liverworts and Yeasts       K1       CO1         c)       Protists and Moss       d) Eubacteria and Archaea       K1       CO1         d)       b) An icosahedral structure with an envelope       K1       CO1         c) An icosahedral structure with an envelope       K1       CO1         d)       Large regimented barrel shaped       K1       CO1         d)       Large regimented barrel shaped       K1       CO1         e)       b) There is no need to vaporise the samples       K1       CO1         c) It is performed in columns       M1 thas high sensitivity       Z       CO1         d)       Outline the role of phytoplankton in the food chain.       K2       CO1         e)       Doutline the role of phytoplankton in the food chain.       K2       CO1         d)       Uthat is the purpose of bioaugmentation?       K2       CO1         d)       Uthat is the purpose of bioaugmentation?       K2	a)	volume	K1	CO1			
c)       two groups a) Cyanobacteria and Diatoms c) Protists and Moss d) Eubacteria and Archaea       K1       CO1         d)       a) Club shaped glycoprotein spikes protrude through a lipid bilayer b) An icosahedral structure with an envelope c) An icosahedral large pleomorphic virus d) Large regimented barrel shaped       K1       CO1         which of the following is not true about High pressure liquid chromatography a) It requires high pressure for the separation of the specious b) There is no need to vaporise the samples c) It is performed in columns d) It has high sensitivity       K1       CO1         2       Answer in one or two sentences d) What is leghemoglobin?       K2       CO1         k       K2       CO1         b) Outline the role of phytoplankton in the food chain.       K2       CO1         c) What is leghemoglobin?       K2       CO1         d) What is meant by first line regimen?       K2       CO1         e)       Differentiate primary and secondary metabolites.       K3       CO2         3       Interpret biorational pesticides of microbial origin.       K3       CO2         c)       Sectrion B       K3       CO2         c)       Gavet any THREE of the following in 500 words       (3 x 10 = 30)         3       Interpret biorational pesticides of microbial origin.       K3       CO2         f       Sketch the types of water bor	b)	The major component of the biofilm area) Cytoplasam of bacteriac) Muramic acidb) Extracellular polymeric substancesd) Sterol	K1	CO1			
a) Club shaped glycoprotein spikes protrude through a lipid bilayer       K1       CO1         b) An icosahedral structure with an envelope       K1       CO1         c) An icosahedral large pleomorphic virus       K1       CO1         d) Large regimented barrel shaped       K1       CO1         which of the following is not true about High pressure liquid chromatography       a) It requires high pressure for the separation of the specious       K1       CO1         c) It is performed in columns       K1       CO1       C) It is performed in columns       K1       CO1         d) It has high sensitivity       Z       Answer in one or two sentences       (5 x 1 = 5)       S2         a) What is leghemoglobin?       K2       CO1       K2       CO1         b) Outline the role of phytoplankton in the food chain.       K2       CO1         c) What is the purpose of bioaugmentation?       K2       CO1         d) What is meant by first line regimen?       K2       CO1         c) Differentiate primary and secondary metabolites.       K2       CO1         d) What is meant by first line regimen?       K3       CO2         d) What is meant by first line regimen?       K3       CO2         d) Ulturet the methods that could be employed to obtain pure culture from a mixed growth.       CO2	c)	two groups a) Cyanobacteria and Diatoms b) Liverworts and Yeasts	K1	CO1			
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c)What is the purpose of bioaugmentation?K2CO1d)What is meant by first line regimen?K2CO1e)Differentiate primary and secondary metabolites.K2CO1SECTION B3Interpret biorational pesticides of microbial origin.K3CO24Sketch the types of water borne diseases.K3CO25Illustrate the methods that could be employed to obtain pure culture from a mixed growth.K3CO26Outline the three phases of dengue fever.K3CO27Review the development and application of LAMP in identifying pathogensK3CO2SECTION CAnswer any TWO of the following in 500 words(2 x 12.5 = 25)8Distinguish biological cycling of inorganic nutrients and metals in soil and theirK4CO3	a)			CO1			
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B Distinguish biological cycling of inorganic nutrients and metals in soil and their $K4$ CO3	SECTION C						
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	8	Distinguish biological cycling of inorganic nutrients and metals in soil and their	K4	CO3			

9 Explain the different kinds of categories of a biosafety cabinet	K4	CO3			
10 Discuss on Optical Tweezers.	K4	CO3			
11 Discuss the application of nanoparticles in identifying pathogens.	K4	CO3			
SECTION D					
Answer any ONE of the following in 1000 words (1 x 15 = 15)					
Biological Nitrogen Fixation (2)					
Symbiotic Nitrogen Fixation (2.5)					
Nitrogen Fixation by Lightning (2.5)					
12 Blue-Green Algae (Cyanobacteria) (2)	K5	CO4			
Biofertilizer for micronutrient (2)					
Plant growth promote Rhizobacteria (2)					
Composting (2)					
13 Describe secondary water treatment methods.	K5	CO4			
SECTION E					
Answer any ONE of the following in 1000 words (1		x 20 = 20)			
14 Explain bioremediation using plants.	K6	CO5			
15 Compile the various mechanism by which antibiotics act upon a bacterial cell	K6	CO5			

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