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Reg. No. : | | | | | | | | | | | | |

Question Paper Code: U2D04

B.E./B.Tech. DEGREE EXAMINATION, NOV 2022

Second Semester

Biotechnology

21UBT204- Microbiology

(Regulations 2021)

Duration: Three hours Maximum: 100 Marks

Answer All Questions

PART A - (5x 1 = 5 Marks)

1. Which part of the compound microscope helps in gathering and focusing light rays on the specimen to be viewed? CO1- U

   (a) Eyepiece lens (b) Objective lens (c) Condenser lens (d) Magnifying lens

2. Satellite RNAs are present in some CO1- U

   (a) Plant viruses (b)Viroids (c) Prions (d) Bacteriophages

3. In aerobic respiration, the terminal electron acceptor is CO1- U

   (a) oxygen (b) nitrogen (c) hydrogen (d) nitrate

4. If a canning procedure is not properly followed, which type of microbe is most likely to grow in the canned food? CO3- Ana

   (a) Obligate Aerobe (b) Acidophile (c) Mesophile (d) Obligate Anaerobe

5. Wavelengths around _____ have the highest bactericidal efficiency. CO1- U

   (a) 150 Å (b) 3900 Å (c) 2650 Å (d) 500 Å

PART – B (5 x 3= 15Marks)

6. Suggest me a microscopic technique to study a specimens alive CO2- App
7. Elaborate the different types of phages CO1- U
8. State Beer Lamberts law and define the optical density CO1- U
9. Define Therapeutic index and mention its importance CO1- U
10. Elucidate the VAM-POT method CO1- U

PART – C (5 x 16= 80Marks)

11.	(a)	The history has shown light microscopy to be a ubiquitous and versatile tool in Medical Science. Discuss the history, usefulness and methods pertinent to light microscopy.	CO1-U	(16)
		Or		
	(b)	An optimized staining technique for the detection of Gram positive and Gram negative bacteria within tissue. Describe the principle , procedure in detail and also give the differences between Gram positive and Gram negative bacteria	CO1-U	(16)
12.	(a)	Prepare of chart of viral diseases , it's causative microorganism and symptoms .Also explain the differences between lytic and lysogenic cycle	CO2-App	(16)
		Or		
	(b)	On the basis of mode of nutrition, Bacteria can be autotrophic and heterotrophic While Bacteria earns energy via two modes of respiration". Comment on this and Explain the Nutrition and Respiration in bacteria	CO2-App	(16)
13.	(a)	Most microorganisms obtain their energy from the nutrients they take into the cell. For microorganisms, these nutrients may come from either an organic or an inorganic source". Analyse the statement and Explain the microbial metabolism in detail	CO3-Ana	(16)
		Or		
	(b)	A man X is being selected as Fermentation Engineer in a Distillation unit. He is appointed to look after Batch,Fed batch and Continous Fermentation of various products but he is confused and got clarified from her Head Y.Imagine that you are Y and explain the differences between these 3 fermentation	CO3-Ana	(16)
14.	(a)	Prepare a list of Antibacterial , Antifungal, Anti-tumor and Antiviral agents and mention it's mode of action	CO3-Ana	(16)
		Or		
	(b)	Rationale the title and give proper justifications and explanations "Microorganisms in human welfare- includes various applications in household, Industries, active biochemicals etc".	CO3-Ana	(16)

15.	(a)	Elucidate and Discuss the production of ethanol by giving complete details of preparation of inoculum & fermentation medium, selection of raw materials & microorganism, fermentation and recovery	CO2-App	(16)
		Or		
	(b)	Imagine that you are selected as a Research scholar in a Prestigious Institution and you are asked to write a review on Biopesticides. Carry on with your scientific temper and rationality	CO2-App	(16)