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**Question Paper Code: U2D04**

B.E./B.Tech. DEGREE EXAMINATION, MAY 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 basic principles underpinning the use of electron microscopy, and give an overview of the core methodologies available in SEM and TEM. Discuss the principles, construction, working and differences between SEM and TEM 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 biochemicalsetc”. CO3-Ana (16)

15. (a) Suppose 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
- Or
- (b) “Penicillin heralded the dawn of the antibiotic age”. Explain its detailed Industrial production and its modifications
- CO3-Ana (16)
- CO3-Ana (16)

