

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



B.Sc. DEGREE EXAMINATION – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY

THIRD SEMESTER – APRIL 2023

UPB 3502 – MICROBIOLOGY

Date: 04-05-2023

Dept. No.

Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

PART – A

Answer the following, each within 50 words.

(10 x 2 = 20 marks)

1. Give the contributions of Robert Koch.
2. What is simple staining?
3. Comment on mesosomes.
4. Mention the components of Gram staining.
5. What are the applications of lipase enzyme?
6. Give a brief note on photolithotrophs.
7. Cite the importance of F' plasmid.
8. List the significances of bacterial chromosome.
9. Draw the structure of TMV.
10. Write note on covid 19 virus.

PART – B

Answer the following, each within 500 words. Draw diagrams / flow charts wherever necessary.

(5 x 7 = 35 marks)

11. (a) Tabulate the differences between prokaryotic cell and an eukaryotic cell.
(or)
(b) Explain the methods followed for special staining.
12. (a) Explain the classification of microbes based on physical conditions required.
(or)
(b) Describe bacterial classification based on cell division and flagellation.
13. (a) Bring out the details on the cellulase and pectinase enzymes and their applications.
(or)
(b) With schematic diagram, explain aerobic respiration.
14. (a) Highlight the details on the mechanism of transformation.
(or)
(b) Elaborate on the generalized and specialized transduction.
15. (a) Describe the classification of plant virus according to Baltimore.
(or)
(b) Outline the methods involved in virus cultivation.

PART C

Answer **any three** of the following, each within 1200 words. Draw diagrams / flow charts wherever necessary. (3 x 15= 45 marks)

16. Elaborate on bacterial classification according to Bergy's Manual of Systematic Bacteriology.
17. Explicate the ultrastructure of Gram positive and Gram-negative cell wall. Add note on Gram staining.
18. Write detailed notes on the microbial dark reactions.
19. Illustrate and explain the process of gene regulation in bacteria with reference to lac operon.
20. Describe the structure of HIV. Add note on the strategies for vaccine production.

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