

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



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

**FIRST SEMESTER – APRIL 2022**

**PBT 1503 – MICROBIOLOGY**

Date: 21-06-2022

Dept. No.

Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

**PART – A**

**Answer ALL the Questions**

**I. Choose the correct answer**

**(5 x 1 = 5 Marks)**

1. The fingerprinting method used in classification of microbes is  
Phage typing    b) TGGE    c) Enzyme assay    d) Indole test
2. Which of the following gram positive bacteria causes pharyngitis  
a) Neisseria    b) Streptococcus    c) Staphylococcus    d) Mycobacterium  
ank
3. Bacteria which have single flagellum on opposite ends are called  
a) Amphibious    b) Lophotrichous    c) Amphitrichous    d) Anamorphic
4. The coagulase test is used to differentiate  
a) *Staphylococcus epidermidis* from *Neisseria meningitidis*  
b) *Staphylococcus aureus* from *Staphylococcus epidermidis*  
c) *Streptococcus pyogenes* from *Staphylococcus aureus*  
d) *Streptococcus pyogenes* from *Enterococcus faecalis*
5. Sexual spores are formed by  
a) Mitotic division    b) Meiotic division    c) binary fission    d) reproduction

**II. State whether the following are true or false.**

**(5x1=5 Marks)**

6. DGGE is a method that uses fluorescently-labeled DNA fragments to produce a community fingerprint.
7. Manganese is one of the major macronutrient required for bacterial growth.
8. *Staphylococcus aureus* is the most virulent species of *Staphylococcus*.
9. Rotavirus is associated with respiratory infection.
10. Tinea nigra is a nail infection.

**III. Complete the following**

**(5 x 1= 5 Marks)**

11. Phycology is the study of \_\_\_\_\_.
12. Optimum temperature for growth of psychrotrophs is \_\_\_\_\_.
13. The proteinaceous virus like agents is called \_\_\_\_\_.
14. The TMV virus after its multiplication enters the neighboring cells through \_\_\_\_\_.
15. Unicellular vegetative spores formed due to septation and fragmentation are called \_\_\_\_\_.

**IV. Answer the following within 50 words**

**(5 x 1 = 5 Marks)**

16. Mention any two toxin-mediated staphylococcal diseases.
17. What are Satellite RNAs?
18. What are pili?
19. Mention at least 3 major virulence factors of *Neisseria gonorrhoeae*.
20. What are viroids?

**PART – B**

**Answer the following each within 500 words.**

**(5 x 8 = 40 Marks)**

**Draw diagrams wherever necessary**

21. (a) What is germ theory of disease? Discuss.

**OR**

(b) Write a note on Haeckel's three kingdom concept.

22. (a) Enumerate the applications of electron microscope

**OR**

(b) Give a note on compound microscopy technique by adding a note on its principle and applications.

23. (a) Write briefly on the virulence factors of *Staphylococcus aureus*.

**OR**

(b) Describe the pathogenesis and laboratory diagnosis of pneumococcal pneumonia

24. (a) Describe the pathogenesis, laboratory diagnosis, and prophylaxis of rabies

**OR**

(b) Write a short note on the structure and pathogenesis of Pox virus.

25. (a) Describe the pathogenesis and laboratory diagnosis of candidiasis

**OR**

(b) Give a brief account of *Trichophyton*.

**PART – C**

**Answer any TWO of the following, each within 1500 words.**

**(2 x 20 = 40 Marks)**

**Draw diagrams wherever necessary.**

26. Describe the molecular classification of microbes based on DGGE method.

27. Explain the different physical and chemical factors which influence the growth of microorganisms.

28. Describe the pathogenesis, laboratory diagnosis, and treatment of syphilis.

29. Explain the life cycle of *Plasmodium falciparum* its diagnosis and treatment for malaria.

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