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**U – 1461**

**Reg. No. :** .....

**Name :** .....

**First Semester B.Sc. Degree Examination, November 2024**

**Career Related First Degree Programme under CBCSS**

**Botany and Biotechnology**

**Vocational Course**

**BB 1171 : MICROBIOLOGY**

**(2023 Admission)**

Time : 3 Hours

Max. Marks : 80

**SECTION – A**

Answer **all** the questions in a word or **one** or **two** sentences. Each question carries **1** mark.

1. Which process in the carbon cycle converts CO<sub>2</sub> into organic carbon?
2. Comment on Thermophiles.
3. Which type of cells have 80S ribosomes?
4. What are the three main shapes of bacteria?
5. Explain the concept of synchronous growth in microbial cultures.
6. What is the role of agar in solid media?
7. What is peptidoglycan?

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8. Comment on stab culture.
9. Comment on selective media.
10. Name one type of virus that contains RNA as its genetic material.

**(10 × 1 = 10 Marks)**

### SECTION – B

Answer any **eight** questions. Each question carries **2** marks. (Answer not to exceed one paragraph).

11. Comment on Lytic life cycle.
12. Which organisms are primarily responsible for nitrogen fixation?
13. What is Bioleaching?
14. Comment on arbuscular mycorrhizae and ectomycorrhizae.
15. What is the difference between disinfection and sterilization?
16. What is the significance of Koch's postulates?
17. What are peritrichous flagella?
18. What is the nucleoid in bacterial cells?
19. How does the stationary phase differ from the death phase?
20. How do cyanobacteria function as biofertilizers?
21. What is serovars?
22. What is the size range of most viruses?

**(8 × 2 = 16 Marks)**

### SECTION – C

Answer any **six** questions. Each question carries **4** marks. (Answer not to exceed **120** words).

23. Discuss the potential impact of methanogenic bacteria on climate change.
24. Write a short note on Phosphorous Cycle.



25. Describe the spread plate method used for isolating microorganisms from mixed samples. Discuss the advantages and limitations of this method in comparison to other pure culture techniques.
26. Explain the process of biological nitrogen fixation and distinguish between free-living and symbiotic nitrogen-fixing microorganisms.
27. Define sterilization and explain its significance in the prevention of microbial contamination in laboratory and medical settings.
28. Explain Sporulation in bacteria.
29. Write a note on Diversity of Microbial world.
30. Discuss the anaerobic bacterial culture techniques.
31. Evaluate the use of chemical sterilization methods. Discuss their advantages and limitations in comparison to physical methods.

**(6 × 4 = 24 Marks)**

#### SECTION – D

Answer any **two** questions. Each question carries **15** marks. (Answer not to exceed **3** pages).

32. Discuss the different types of biofertilizers. Explain their role in sustainable agriculture and how they are applied to crops.
33. Compare and contrast batch, fed-batch, and continuous culture methods. Discuss the advantages of each method for microbial growth and industrial applications, such as in fermentation processes.
34. Discuss the contributions of Louis Pasteur to the field of microbiology, highlighting his experiments and their impact on the scientific world.
35. Write an essay on the structure of T4 bacteriophage.

**(2 × 15 = 30 Marks)**

