JHARKHAND Rai University
RANCHI

PRACTICE SET
End Semester Examination, May 2026

Program: BMLT
Semester: IV
Subject: Microbiology-II
Subject Code: 42ABMT401

Course Outcome:
On the completion of the Course, the students will be able to:

Course Outcomes	Description
CO1	Understand the mode of action and general characteristics of chemotherapeutic agents and drugs.
CO2	Define prophylactic agents, explain their importance in infection control, and describe how they contribute to public health and immunity.
CO3	Explain the role of microorganisms in food and their implications for health.
CO4	Develop expertise in fermentation technology, mastering fermenter structure, production methods, and preservation.
CO5	Gain a comprehensive understanding of algae and parasites, enabling them to assess their ecological roles.

1. **Section A : 10 Marks Question covering All units (Total No. of questions 30)**
2. **Section B : 20 Marks Question covering All units (Total No. of questions 10)**

UNIT I
Section A (10 marks)

1. Define chemotherapeutic agents and describe their general characteristics and classification. **[CO1, Remember, LOT]**
2. Explain the mechanism of action and clinical importance of Cephalosporins and Vancomycin. **[CO1, Understand, LOT]**
3. Analyze the differences between bactericidal and bacteriostatic antibiotics with examples. **[CO1, Analyze, HOT]**
4. Explain the mechanism of action of antibiotics with suitable examples. **[CO1, Understand, LOT]**

5. Describe the structure, mode of action, and uses of Penicillin and Ampicillin. **[CO1, Apply, LOT]**
6. Discuss the role of antifungal and antiviral drugs in chemotherapy. **[CO1, Understand, LOT]**

Section B (20 marks)

7. Evaluate the mechanisms of action of different classes of antibiotics and their clinical significance in disease management. **[CO1, Evaluate, HOT]**
8. Design an ideal chemotherapeutic agent by discussing its properties, advantages, and limitations. **[CO1, Create, HOT]**

UNIT II

Section A (10 marks)

9. Define prophylactic agents and explain their importance in disease prevention. **[CO2, Remember, LOT]**
10. Describe different types of vaccines with examples. **[CO2, Understand, LOT]**
11. Explain the preparation and uses of killed and live vaccines. **[CO2, Understand, LOT]**
12. Describe subunit vaccines including DNA and mRNA vaccines. **[CO2, Understand, LOT]**
13. Evaluate the effectiveness of vaccination programs in public health. **[CO2, Evaluate, HOT]**
14. Evaluate different types of vaccines and their role in disease prevention. **[CO2, Evaluate, HOT]**

Section B (20 marks)

15. Analyze the advancements in vaccine technology such as mRNA and DNA vaccines. **[CO2, Analyze, HOT]**
16. Design an ideal vaccination strategy for controlling infectious diseases. **[CO2, Create, HOT]**

UNIT III

Section A (10 marks)

17. Explain the microbiological analysis of air and methods of purification. **[CO3, Understand, LOT]**
18. Describe microorganisms found in food and their sources. **[CO3, Remember, LOT]**
19. Explain food poisoning and preventive measures. **[CO3, Understand, LOT]**
20. Describe BOD and COD and their significance in water quality. **[CO3, Understand, LOT]**
21. Assess the impact of contaminated food and water on health. **[CO3, Evaluate, HOT]**
22. Explain sewage and its treatment methods in detail. **[CO3, Understand, LOT]**

Section B (20 marks)

23. Analyze the causes of foodborne diseases with reference to microbial contamination and modes of transmission, and suggest preventive strategies. **[CO3, Analyze, HOT]**

24. Evaluate the different stages of sewage treatment and explain their role in reducing microbial load and protecting public health. **[CO3, Evaluate, HOT]**

UNIT IV

Section A (10 marks)

25. Define fermentation and explain its different types based on oxygen requirement and end products with suitable examples. **[CO4, Remember, LOT]**
26. Describe the structure and working of a fermenter. **[CO4, Understand, LOT]**
27. Explain the process of ethanol production by fermentation, including the role of microorganisms and conditions required. **[CO4, Understand, LOT]**
28. Describe production of organic acids (acetic acid, citric acid). **[CO4, Understand, LOT]**
29. Analyze different fermentation techniques used in industries and discuss their advantages and limitations. **[CO4, Analyze, HOT]**
30. Explain the production of antibiotics by fermentation, highlighting the microorganisms used and basic steps involved. **[CO4, Understand, LOT]**

Section B (20 marks)

31. Evaluate fermentation technology in industrial microbiology, highlighting its principles, advantages, limitations, and impact on large-scale production. **[CO4, Evaluate, HOT]**
32. Design a detailed fermentation process for antibiotic production, explaining the selection of microorganisms, media composition, and process conditions. **[CO4, Create, HOT]**

UNIT V

Section A (10 marks)

33. Define algae and describe their general structure, including cellular organization and major components. **[CO5, Remember, LOT]**
34. Explain the different classes of algae based on their characteristics, pigmentation, and examples. **[CO5, Understand, LOT]**
35. Explain the classification of parasites based on their habitat, life cycle, and mode of transmission. **[CO5, Remember, LOT]**
36. Analyze the economic importance of algae in various fields such as food, industry, and environment. **[CO5, Analyze, HOT]**
37. Compare different classes of parasites. **[CO5, Analyze, HOT]**
38. Describe common parasitic diseases along with their causative agents and basic diagnostic methods. **[CO5, Understand, LOT]**

Section B (20 marks)

39. Analyze different types of parasites and their life cycles, explaining their modes of transmission and adaptation to host environments. **[CO5, Analyze, HOT]**

40. Assess the importance of algae in maintaining environmental balance and their applications in various industries. **[CO5, Evaluate, HOT]**

Summary Sheet

CO Wise

CO	Q. No	Marks
CO1	1,2,3,4,5,6,7,8	100
CO2	9,10,11,12,13,14,15,16	100
CO3	17,18,19,20,21,22,23,24	100
CO4	25,26,27,28,29,30,31,32	100
CO5	33,34,35,36,37,38,39,40	100
Total		**500**

Unit Wise

Unit	Q. No	Marks
Unit 1	1,2,3,4,5,6,7,8	100
Unit 2	9,10,11,12,13,14,15,16	100
Unit 3	17,18,19,20,21,22,23,24	100
Unit 4	25,26,27,28,29,30,31,32	100
Unit 5	33,34,35,36,37,38,39,40	100
Total		**500**

Blooms Taxonomy Level (BTL) Wise

BTL	Q. No	Marks
LOT	1,2,4,5,6,9,10,11,12,17,18,19,20,22,25,26,27,28,30,33,34,35,38	230
HOT	3,7,8,13,14,15,16,21,23,24,29,31,32,36,37,39,40	270
Total		**500**

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Disclaimer: -This is a Practice set. The Question in End term examination will differ from the Practice set. This Practice set is meant for practice only.