JHARKHAND Rai University
RANCHI

PRACTICE SET FOR SUBJECTIVE QUESTIONS
End Semester (III Semester) Examination Dec 2025

Program: B. Pharm

Subject: Pharmaceutical Microbiology (Theory)

Subject Code: BP303T

Unit I			
S No.	**Questions**	**CO**	**Bloom's Taxonomy Level**
Section II			**Questions for 5 marks**
1	Describe the structure and functions of bacterial cell wall with neat labeled diagram.	CO1	Remember
2	Compare and contrast the structures of prokaryotic and eukaryotic cells.	CO1	Understand
3	Explain the various types of culture media used for bacterial growth with suitable examples	CO1	Remember
4	Design a suitable nutrient medium for bacterial growth, mentioning the purpose of each ingredient used.	CO1	Remember
5	Explain the bacterial growth curve with a neat labeled diagram.	CO1	Understand
6	Describe the methods used for cultivation of anaerobes in laboratory.	CO1	Understand
7	Write short notes on quantitative measurement of bacterial growth (total vs viable count).	CO1	Understand
Section III			**Questions for 10 marks**
8	Evaluate the history and development of microbiology, highlighting key discoveries and their impact on pharmacy.	CO1	Evaluate
9	Evaluate phase contrast, dark field, and electron microscopy. Discuss their principles, advantages, and pharmaceutical applications.	CO1	Evaluate
10	Analyze the cultivation techniques of anaerobic bacteria, mentioning the equipment, media, and environmental conditions required.	CO1	Analyze
Unit II			
S No.	**Questions**	**CO**	**Bloom's Taxonomy Level**
Section II			**Questions for 5 marks**
11	Describe physical and chemical methods of sterilization, giving examples and their applications in pharmacy.	CO2	Remember
12	Explain the principle, procedure, and result interpretation of Gram staining with a neat diagram.	CO2	Remember
13	Discuss the principle and importance of IMViC biochemical tests in bacterial identification.	CO2	Remember
14	Explain the role of filtration in sterilization and name commonly used membrane filter types.	CO2	Understand

15	Write short notes on sterility indicators and their types with examples.	CO2	Understand
16	Explain the importance of evaluating sterilization efficiency in pharmaceutical manufacturing.	CO2	Understand
17	Compare simple staining, Gram staining, and acid-fast staining in terms of principle, reagents, and purpose.	CO2	Remember
Section III			**Questions for 10 marks**
18	Analyze the equipment used in large-scale sterilization with a neat diagram.	CO2	Analyze
19	Analyze the various methods of sterilization – physical, chemical, gaseous, radiation, and mechanical.	CO2	Analyze
20	Evaluate the efficiency testing of sterilization methods and explain the role of sterility indicators in validation.	CO2	Evaluate
Unit III			
S No.	**Questions**	**CO**	**Bloom's Taxonomy Level**
Section II			**Questions for 5 marks**
21	Explain the morphology and classification of fungi with examples.	CO3	Remember
22	Describe the replication of viruses with a neat labeled diagram.	CO3	Remember
23	Discuss the factors influencing disinfection and the evaluation of disinfectant efficiency.	CO3	Remember
24	Describe the cultivation methods of fungi used in pharmaceutical microbiology.	CO3	Understand
25	Explain the steps involved in the replication cycle of bacteriophages (lytic cycle)	CO3	Understand
26	Describe the methods used for cultivation of viruses using suitable host systems.	CO3	Remember
27	Explain the classification of disinfectants with examples of each category.	CO3	Remember
Section III			**Questions for 10 marks**
28	Analyze the evaluation methods for bacteriostatic and bactericidal activity, mentioning their pharmaceutical relevance.	CO3	Analyze
29	Evaluate the methods used for evaluation of disinfectant efficiency (phenol coefficient test, Rideal-Walker test).	CO3	Evaluate
30	Analyze the membrane filtration method used for sterility testing by explaining its principle, steps involved, advantages, and limitations compared to other methods.	CO3	Analyze
Unit IV			
S No.	**Questions**	**CO**	**Bloom's Taxonomy Level**
Section II			**Questions for 5 marks**
31	Explain the design and working of a laminar airflow cabinet with a neat labeled diagram	CO4	Remember
32	Explain the principle behind microbiological assay of amino acids.	CO4	Understand
33	Discuss the classification of clean areas based on air cleanliness and microbial limits as per regulatory standards.	CO4	Remember
34	Describe the methods for standardization and assessment of a new antibiotics.	CO4	Understand
35	Explain the role of HEPA filters in controlling microbial contamination	CO4	Understand
36	Discuss the use of microbiological assays in determining the potency of antibiotics	CO4	Remember

37	Explain the role of personnel hygiene in contamination prevention.	CO4	Understand
Section III			**Questions for 10 marks**
38	Analyze the microbiological assay methods used for vitamins and amino acids by examining the role of test organisms, media composition, and control parameters in determining assay accuracy.	CO4	Analyze
39	Analyze the different microbiological assay methods used for antibiotics, vitamins, and amino acids, stating their principles and applications.	CO4	Analyze
40	Analyze the layout of an aseptic area used for sterile product manufacturing, discussing how air handling systems and pressure differentials influence contamination control.	CO4	Analyze
Unit V			
S No.	**Questions**	**CO**	**Bloom's Taxonomy Level**
Section II			**Questions for 5 marks**
41	Explain the different types of microbial spoilage of pharmaceutical products with suitable examples.	CO5	Remember
42	Discuss the general procedure for the growth of animal cells in culture. Explain the maintenance and sub-culturing process.	CO5	Understand
43	Analyze the factors affecting microbial spoilage in pharmaceutical formulations and discuss how these can be minimized	CO5	Understand
44	Explain the importance of quality control in microbial spoilage testing.	CO5	Understand
45	Explain how temperature and humidity control affect microbial stability in formulations	CO5	Remember
46	Assess the applications of animal cell culture in vaccine production, drug screening, and biotechnology research.	CO5	Remember
47	Discuss the importance of good manufacturing practices (GMP) in minimizing microbial contamination.	CO5	Understand
Section III			**Questions for 10 marks**
48	Evaluate the effectiveness of various antimicrobial agents used for product preservation, citing examples from pharmaceutical formulations.	CO5	Evaluate
49	Analyze the essential design considerations and equipment required for setting up an animal cell culture laboratory, highlighting how aseptic precautions ensure experimental reliability and safety.	CO5	Analyze
50	Analyze the different sources and types of microbial contaminants in pharmaceutical manufacturing, and propose methods for their control.	CO5	Analyze

Course Outcome (CO): On the successful completion of the Course, students will be able to:-

CO1	Employ the knowledge of identification, cultivation and preservation of various microorganisms.
CO2	Implement the sterilization process in pharmaceutical industries.
CO3	Describe the Employment of microbiological assay and sterility testing.
CO4	Evaluate the efficacy of antimicrobial agent.
CO5	Describe the evaluation of microbial stability of formulations and cell culture.

Summary Sheet

CO Wise

CO	Q. No	Marks
CO1	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	65
CO2	11, 12, 13, 14, 15, 16, 17, 18, 19, 20	65
CO3	21, 22, 23, 24, 25, 26, 27, 28, 29, 30	65
CO4	31, 32, 33, 34, 35, 36, 37, 38, 39, 40	65
CO5	41, 42, 43, 44, 45, 46, 47, 48, 49, 50	65
Total		**325**

Unit Wise

Unit	Q. No	Marks
Unit 1	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	65
Unit 2	11, 12, 13, 14, 15, 16, 17, 18, 19, 20	65
Unit 3	21, 22, 23, 24, 25, 26, 27, 28, 29, 30	65
Unit 4	31, 32, 33, 34, 35, 36, 37, 38, 39, 40	65
Unit 5	41, 42, 43, 44, 45, 46, 47, 48, 49, 50	65
Total		**325**

Blooms Taxonomy Level (BTL) Wise

BTL	Q. No	Marks
LOT	1, 2, 3, 4, 5, 6, 7, 11 12 13 14 15 16 17, 21, 22, 23, 24, 25, 26, 27, 31, 32, 33, 34, 35, 36, 37, 41, 42, 43, 44, 45, 46, 47	175
HOT	8, 9, 10, 18, 19, 20, 28, 29, 30, 38, 39, 40, 48, 49, 50	150
Total		**325**

Note: All questions from **Section II** will be considered as **LOT.**
All questions from **Section III** will be considered as **HOT.**

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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.