

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**B.PHARM - SEMESTER- 5 EXAMINATION – WINTER -2024**

**Subject Code:BP504TP****Date: 27-11-2024****Subject Name: Pharmaceutical Microbiology****Time:10.30 AM TO 01.30 PM****Total Marks: 80****Instructions:**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

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|------------|--|-----------|
| <b>Q.1</b> | (a) Draw a labeled diagram of bacterial cell and differentiate the Prokaryotes and Eukaryotes.   | <b>06</b> |
|            | (b) Classify bacteria based on the temperature and oxygen requirement with suitable examples.  | <b>05</b> |
|            | (c) Explain bacterial growth curve in detail with labeled diagram.   | <b>05</b> |
| <b>Q.2</b> | (a) Differentiate i) Bacteria and Virus<br>ii) Gram-positive and Gram-negative bacteria  | <b>06</b> |
|            | (b) Enumerate methods for the isolation of microorganisms and discuss any two methods in detail.   | <b>05</b> |
|            | (c) Define and classify culture media and discuss types of culture media based on their use.   | <b>05</b> |
| <b>Q.3</b> | (a) Mention various factors affecting disinfection action and discuss any two.   | <b>06</b> |
|            | (b) Illustrate IMViC test for identification of bacteria.  | <b>05</b> |
|            | (c) What are the different methods for sterilization and explain Ethylene Oxide sterilization in brief.  | <b>05</b> |
| <b>Q.4</b> | (a) Classify staining techniques and discuss differential staining in detail.  | <b>06</b> |
|            | (b) Write a detailed note on various sterility indicators in detail  | <b>05</b> |
|            | (c) Differentiate dry heat sterilization and moist heat sterilization with the importance of sterilization for control of microbes               | <b>05</b> |
| <b>Q.5</b> | (a) Define disinfectant, explain the properties of an ideal disinfectant and classify disinfectants with their mechanism of action.              | <b>06</b> |
|            | (b) Enlist types of spoilage and discuss factors affecting microbial spoilage  | <b>05</b> |
|            | (c) Explain in brief the design of the aseptic area with the help of a suitable diagram and various sources of contamination in the aseptic area | <b>05</b> |
| <b>Q.6</b> | (a) Define sterility testing, and discuss methods for the sterility testing of pharmaceutical products.  | <b>06</b> |
|            | (b) Explain applications of animal cell culture in pharmaceutical research   | <b>05</b> |
|            | (c) Discuss various quantitative measurements of bacterial growth and explain methods for the estimation of the viable count of bacteria         | <b>05</b> |
| <b>Q.7</b> | (a) Discuss principle and methods for the microbial assay of antibiotics in brief  | <b>06</b> |
|            | (b) Describe various microscopy and explain the applications and limitations of electron microscopy  | <b>05</b> |
|            | (c) List out various types of phenol coefficient tests for the evaluation of disinfectant and explain the Rideal-Walker test in detail           | <b>05</b> |