

# DEPTH OF BIOLOGY

**B. PHARMACY**

**3 SEM IMPORTANT QUESTIONS**

**PHARMACEUTICAL  
MICROBIOLOGY**

## **Unit I**

**10 Hours**

Introduction, history of microbiology, its branches, scope and its importance.

Introduction to Prokaryotes and Eukaryotes

Study of ultra-structure and morphological classification of bacteria, nutritional requirements, raw materials used for culture media and physical parameters for growth, growth curve, isolation and preservation methods for pure cultures, cultivation of anaerobes, quantitative measurement of bacterial growth (total & viable count).

Study of different types of phase contrast microscopy, dark field microscopy and electron microscopy.

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**10 MARKS**

1. Define study of ultrastructure and morphological classification of bacteria

**5 MARKS**

1. Explain bacterial growth curve
2. Explain electron microscopy
3. Write down the difference between prokaryotes and eukaryotes
4. Write down raw materials used for culture media

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**2 MARKS**

1. Write down the scope and importance of microbiology
2. What is viable count?

## **Unit II**

**10 Hours**

Identification of bacteria using staining techniques (simple, Gram's & Acid fast staining) and biochemical tests (IMViC).

Study of principle, procedure, merits, demerits and applications of physical, chemical gaseous, radiation and mechanical method of sterilization.

Evaluation of the efficiency of sterilization methods.

Equipments employed in large scale sterilization.

Sterility indicators.

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**10 MARKS**

1. Explain sterilization, it's merits, demerits and application
2. Define biochemical test [IMViC]

**5 MARKS**

1. Explain acid fast and non acid fast staining
2. Define sterility indicators

**2 MARKS**

1. Define sterilization

### **Unit III**

**10 Hours**

Study of morphology, classification, reproduction/replication and cultivation of Fungi and Viruses.

Classification and mode of action of disinfectants

Factors influencing disinfection, antiseptics and their evaluation. For bacteriostatic and bactericidal actions

Evaluation of bactericidal & Bacteriostatic.

Sterility testing of products (solids, liquids, ophthalmic and other sterile products) according to IP, BP and USP.

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**5 MARKS**

1. Write down the classification and mode of action of disinfectant
2. Explain bacteriostatic and bacteriocidal
3. Difference between antiseptic and disinfectant

**2 MARKS**

1. What is anti septic?
2. Define disinfectant

## **Unit IV**

**08 Hours**

Designing of aseptic area, laminar flow equipments; study of different sources of contamination in an aseptic area and methods of prevention, clean area classification.

Principles and methods of different microbiological assay. Methods for standardization of antibiotics, vitamins and amino acids.

Assessment of a new antibiotic.

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**10 MARKS**

1. What is microbiological assay , write down the method for standardization of antibiotics
2. Define assessment of new antibiotics

**5 MARKS**

1. Write down a short note on aseptic area
2. Define laminar flow equipments

**2 MARKS**

1. Define clean area classification

## Unit V

07Hours

Types of spoilage, factors affecting the microbial spoilage of pharmaceutical products, sources and types of microbial contaminants, assessment of microbial contamination and spoilage.

Preservation of pharmaceutical products using antimicrobial agents, evaluation of microbial stability of formulations.

Growth of animal cells in culture, general procedure for cell culture, Primary, established and transformed cell cultures.

Application of cell cultures in pharmaceutical industry and research.

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**10 MARKS**

1. Explain animal cell culture, it's principle, procedure and application

**5 MARKS**

1. Explain evaluation of microbial stability of formulation
2. Define spoilage and write down factors affecting it

**2 MARKS**

1. Define spoilage
2. Write the application of animal cell culture