

Microbiology Lab 3051 (Spring 2016)
Mid-Term Laboratory Exam
Study Guide
Labs 1 - 5

Objectives:

1. Know the parts of the microscope and their functions.
2. Know how to use the microscope (adjusting for proper viewing, getting an image in focus, using oil immersion) and how to take care of a microscope.
3. Describe aseptic technique and understand why it is important.
 - a. Aseptic Technique: sterilize inoculating loop by holding it over flame of Bunsen burner → flame mouth of tube → insert loop → remove loop → flame mouth → cap tube
 - b. Insures that no contaminating organisms are introduced into culture materials when the latter are inoculated or handled in some manner.
 - c. Insures that organisms are being handled do not contaminate the handler or others who may be present.
4. Compare and contrast how to make a bacterial smear from liquid media and solid media.
 - a. Liquid Media – two loopfuls of liquid containing organisms are placed in the center of the “target circle” → organisms are dispersed over entire area of “target circle” → the smear is allowed to dry at room temperature → slide is passed through flame several times to heat-kill and fix organisms to slide.
 - b. Solid Media – two loopfuls of water are placed in center of “target circle” → a very small amount of organisms is dispersed with inoculating loop in water over entire area of “target circle” → the smear is allowed to dry at room temperature → slide is passed through flame several times to heat-kill and fix organisms to slide.
5. Explain the importance of heat fixing and air-drying specimens on slides.
 - a. Heat-fixing
 - b. Air-drying
6. Distinguish between acidic and basic dyes and when to use each.
 - a. Basic dyes – dyes that have cationic chromophores
 - b. Acidic dyes – dyes that have anionic chromophores
7. Describe simple staining and what bacterial characteristics can be observed using this technique.
 - a. Simple staining – the use of a single stain to color a bacterial cell
 - b. Works well on bacteria that have color-bearing ions (chromophores) and are positively charged.
8. Recognize the different bacterial morphologies.
 - a. Bacilli – rods
 - i. Coccobacillus
 - ii. Bacilli
 - iii. Fusiform
 - b. Cocci – spherical
 - c. Spirals – curved rods
9. Understand the distribution of bacteria in our world.
 - a.
10. Compare and contrast gram-positive and gram-negative cells (what colors they stain using the Gram stain and how cell wall structure determines how they stain).

Microbiology Lab Midterm Study Guide

A Gutmann



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Table of Contents Microbiology Lab Midterm Study Guide

1. Understanding the eBook Microbiology Lab Midterm Study Guide
 - The Rise of Digital Reading Microbiology Lab Midterm Study Guide
 - Advantages of eBooks Over Traditional Books
2. Identifying Microbiology Lab Midterm Study Guide
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Microbiology Lab Midterm Study Guide
 - User-Friendly Interface
4. Exploring eBook Recommendations from Microbiology Lab Midterm Study Guide
 - Personalized Recommendations
 - Microbiology Lab Midterm Study Guide User Reviews and Ratings
 - Microbiology Lab Midterm Study Guide and Bestseller Lists
5. Accessing Microbiology Lab Midterm Study Guide Free and Paid eBooks
 - Microbiology Lab Midterm Study Guide Public Domain eBooks
 - Microbiology Lab Midterm Study Guide eBook Subscription Services
 - Microbiology Lab Midterm Study Guide Budget-Friendly Options

6. Navigating Microbiology Lab Midterm Study Guide eBook Formats
 - ePub, PDF, MOBI, and More
 - Microbiology Lab Midterm Study Guide Compatibility with Devices
 - Microbiology Lab Midterm Study Guide Enhanced eBook Features
7. Enhancing Your Reading Experience
 - Adjustable Fonts and Text Sizes of Microbiology Lab Midterm Study Guide
 - Highlighting and Note-Taking Microbiology Lab Midterm Study Guide
 - Interactive Elements Microbiology Lab Midterm Study Guide
8. Staying Engaged with Microbiology Lab Midterm Study Guide
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Microbiology Lab Midterm Study Guide
9. Balancing eBooks and Physical Books Microbiology Lab Midterm Study Guide
 - Benefits of a Digital Library
 - Creating a Diverse Reading Collection Microbiology Lab Midterm Study Guide
10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
11. Cultivating a Reading Routine Microbiology Lab Midterm Study Guide
 - Setting Reading Goals Microbiology Lab Midterm Study Guide
 - Carving Out Dedicated Reading Time
12. Sourcing Reliable Information of Microbiology Lab Midterm Study Guide
 - Fact-Checking eBook Content of Microbiology Lab Midterm Study Guide
 - Distinguishing Credible Sources
13. Promoting Lifelong Learning
 - Utilizing eBooks for Skill Development
 - Exploring Educational eBooks
14. Embracing eBook Trends
 - Integration of Multimedia Elements

- Interactive and Gamified eBooks

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