Microbiology 2400
Study Guide #1
Winter Semester 2008
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LABORATORY SECTION

INTRODUCTION: THE COMPOUND MICROSCOPE

Textbook reference for this set of questions is chapter 3
Also see, the introductory materials of the microscope exercise in your laboratory manual

1. In discussing light microscopes, it was noted that 2 basic forms exist, the simple and compound microscope. Describe the major difference between them. What type of microscope is employed in this laboratory?

2. By way of review (Biology 1000), what is the formula for the calculation of total magnification capacity of a microscope?

3. Using the above formula, fill in the following table.

Ocular magnification	Objective magnification	Total Magnification
5X	15X	
10X		200X
	30X	300X

4. What are the 2 major factors, which control the resolving power of a microscope? What is the relationship between these factors in the determination of resolving power (State the formula utilized for the determination of resolving power)?

5. As the resolving power of a microscope improves or get better, what in general happens to the clarity of the image?

6. Which is the "better" resolving power, 0. 80um (micrometer) or 0.60um? How does a micrometer (um) relate to a millimeter and a meter?

7. The highest power objective of your microscope utilizes a substance known as immersion oil for proper operation. What major effect does this oil have on the operation of the microscope?

8. If the optical system of a microscope has a resolving power of 1 micrometer, objects that are 1 micrometer or greater apart, will appear as ___, while those closer than 1 micrometer will appear as ___.

LECTURE SECTION

Chapter 1

1. What major contribution to the science of microbiology did Anton Van Leeuwenhoek, make?

2. Why is it thought that Leeuwenhoek looked at so many different specimens under his microscopes? What was the English organization that played a major role in aiding the dissemination of his findings?

3. Why were microorganisms not discovered prior to the middle 1600s?