Homework Assignment 1 (25 points) Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

MCB 2010C- Gessner Due date: September 24, 2016

1. Read about infectious diseases and the human condition in chapter 1 of your textbook. Give evidence that people in low-income countries suffer from microbial diseases at higher rates than do people in high-income countries.

 (2 points)

2. Read about infectious diseases and the human condition in chapter 1 of your textbook. The “golden age of microbiology” started in the 19th century and was a time when the etiologic agents, cures and preventions were discovered for many of the “obvious” infectious diseases. We are now experiencing what many scientists describe as the second “golden age of microbiology.” Name three microbial infections, and the disease each causes, which have recently been identified to be the infectious causes of “quiet, slowly destructive” diseases. (3 points)

3. Read chapter 1 in your textbook and using what you learned, write ***your own*** definition for the word sterilization that includes the words “spores” and “virus particles.” (2 points)

4. Read Chapter 3 in your textbook and list the five I’s necessary to identify microorganisms. Which of the five I’s have we experienced thus far in the lab experiments performed in our lab? (2 points)

5. Read chapter 3 in your textbook and describe what is meant by each of the following culture types. (2 points)

- Pure culture:

- Subculture:

- Mixed culture:

- Contaminated culture:

6. Read chapter 3 in your textbook and explain in your own words why a drop of oil is necessary to provide maximum resolution when using the oil immersion lens. In your explanation, also explain what happens is the oil does not come in contact with the oil immersion lens. (2 points)

7. The microscopes in our lab are bright-field compound light microscopes but there are other types of compound light microscopes. **Explain why we would use each of the following microscopes**, instead of a bright-field compound light microscope. (3 points)

 - Dark-field:

- Phase-contrast:

- Fluorescent:

8. Read chapter 4 in your textbook to explain **what a biofilm is** AND **why biofilms can be a problem when using medical devices implanted into your body**. (2 points)

9. Read chapter 4 in your textbook and list **4** **differences** between gram positive and gram negative bacterial **cell walls**. (4 points)

10. Read chapter 4 in your textbook to list, **in correct order**, the four chemicals needed to perform a gram stain. (1 point)

 1)

 2)

 3)

 4)

**What color** will gram positive bacterial cells appear under the microscope if you forget to apply the first chemical? (1 point)

**What color** will gram negative bacterial cells appear under the microscope if you forget to apply the third chemical? (1 point)