MICROBIOLOGY 260 **WRITTEN TEST POOL QUESTIONS Lecture test** 1

Each student of Micro 260 should be able to answer any and all of these questions accurately and fully. Not all question will be used for lecture test 1. Rather, question will be selected at random and combined with questions taken from the study guides (provided in class) as well as chapter review questions. Lecture test 1 will be conducted during lab time on 26 April 2011**.** Students not showing up for the test shall expect an entirely different test than test administered to those that took the test on time.

The test will be composited as a multiple choice, true and false, short answers and diagram interpetation.

The following questions will be used as a foundation to generate a test from. Futhermore, each study guide found on this web site for each of the three chapters covered - Chapter 1 History; Chapter 2 Chemistry; and Chapter 4 bacterial cell morphology and physiology - are available to draw questions from.

1) How did Pasteur's experiments address the issue the "air" was necessary for spontaneous generation? Explain the setup Pasteur used for this experiment compared with previous experiments of similar nature which reveal different results. (6 pt)

2)Discuss the four (4) major postulate Robert Koch stated. And, why are these postulates so important to medical science today? Can a microbiologist always use Kock's postulates as a means to link a microbe and the disease that may arise from its infection? (10 pt)

3) Vaccine (10 pts)
What is a vaccine
What was the first vaccine
What was the source
Who developed the first vaccine and how he know what to use?
What is the value of vaccines in today society?

4) How does a prokryotic cell differ from a eukaryotic cell? Provide examples or drawing to support your explanation. (5 pt)

5) Describe the cell wall of a prokaryotic microbe and how does this cell wall construction influence gram stain (5 pt)
5b. Fully describe the gram staining process (10 pts)
5c. Why is heat fixing important (6 pts)

6) Describe how a selective permeable membrane relates to diffusion and osmosis. Include tonicity solution status in your explanation (10 pt)

7) Draw and label an example of four (4) common shapes of prokaryotic microbes. (8 pts)

8b. Name the five different arrangements for the circular type bacteria (5 pt)

8) Describe the **similarity, differences** and **functions** of a fimbira, pilli, and flagellum (6pt)

9) Draw and name four (4) different positional arrangements of a flagella (6 pt)

10) Define "chemotaxis". Describe bacterial cell movement using "chemotaxis" (4 pts)

11) What ion results in flagella movement (2pt)?

12) What survival features does a spore offer a prokaryote compared to a non-sporing microbe? Include in your explanation the physical features of a bacterial spore In another words, what is sporulation or sporogensis and why is it important to bacterial cells? (6 pt)

13) Some prokaryotic cells Gram stain positive while some Gram stain negative? List and describe the differences between Gram (+) and Gram (-) microbes (8 pt) ?

14) Describe the gram staining process noting chemicals used and the length of time between each treatment (10 pt)

15) Roughly 60% of the phospholipid membrane is composed of proteins. A specific group of these protein accounts for transport of nutrient and waste products. Name and describe the four active transport protein involved in cell membrane activity. (12 pts)

16) List and describe two types of passive processes of molecule transport across the plasma membrane (6 pts)

17) Describe proper foot ware for lab practices? (2 pt's)

18) Be able to describe the contribution for the various people of history as presented during the first two lectures. Such a list include but is not complete are the following:

Antony Leeuwenhoek,
Edward Jenner,
Ignaz Semmelweis
Louis Pasteur,
Walter Reed,
Robert Koch,
Paul Ehrlich,
Christian Gram,
R.J. Petri,
Alexander Fleming
Florence Nightingale