**Introduction to Medical Microbiology**

**Exam #2 Study Guide**

***Microbial Metabolism***

1. Know the factors that can influence an enzymes functions and what each factor does to

affect the enzyme.

2. Know the order and descriptions of the steps of aerobic respiration. Know how many

ATP each step produces. Know the molecules that enter and exit each step.

3. Be able to describe the functions of NAD and FAD.

4. Be able to identify whether a molecule had been oxidized or reduced.

5. Know the difference between aerobic respiration and anaerobic respiration.

6. Be able to describe the different types of fermentation.

7. Know what is produced by the cyclic pathway of the light reaction, non-cyclic pathway

of the light reaction, and the light-independent (dark) reaction.

8. Be able to identify which type of pigments are associated with different organisms.

***Microbial Growth***

1. Be able to describe bacterial classifications based on carbon source, energy source,

temperature, oxygen requirements, pH, and osmotic pressure (salt).

2. Be able to define major element, trace element, and growth factor.

3. Be able to identify the major elements.

4. Know the different phases of the growth curve and what causes each.

5. Be able to calculate initial population size, final population size, and generation

number.

6. Know the process of bacterial reproduction (binary fission).

7. Know the generation time examples given in class.

***Bacterial Genetics***

1. Know all the enzymes involved with DNA replication, transcription/translation, and DNA

recombination and know the functions of each.

2. Be able to define transcription, translation, transfection, transduction, transformation, and

conjugation. Also know what is happening or created by each one.

3. Be able to describe the structure of DNA.

***Controlling Microorganisms***

1. Know the definitions of sterilization, disinfection, degermination, and sanitation.

2. Know the time/temp parameters of steam sterilization (and psi), dry oven, and the 3 types

of pasteurization.

3. Know the uses of each method of sterilization and if one type is preferred over another.

4. Know the method of action of disinfection/sterilization methods. (i.e. denature proteins,

damage cell wall, creating hostile environment, altering DNA, etc…)

5. Specifically know how ionizing radiation, non-ionizing radiation, salt, and surfactants

inhibit/destroy microbes.

6. Know the factors that influence the effectiveness of antimicrobial agents.

***This study guide covers the majority of information on the exam but not all of it. You are still responsible for any information that was covered in the notes but not put on this guide (intentionally or unintentionally). Good Luck and Study Hard!!***