Reflection

Student’s Name

Institutional Affiliation

**Explain the significance of microbiology**

Microbiology is the study of microorganisms that are cell-cluster and those infectious agents too small to be seen by the eye. These organisms include those with a nucleus like the eukaryotes and those without a nucleus like fungi, prokaryotes, bacteria, and protists (Murray, Rosenthal, & Pfaller, (2015). When we study microbiology, we understand how cells work. Microbiology is also helpful in agriculture as we can help create pesticides for various microorganisms that attack crops. Microbiology is also beneficial in health and medicine by coming up with cures, helps conserve the environment and in the field of biotechnology.

**Describe the microbial growth process**

Growth of bacteria occurs in four different phases

1. Lag phase

The bacteria have not yet matured and are not able to multiply. What it can do is to synthesize RNA, molecules, and enzymes. Cells are not dormant, and they experience very little change. This phase takes one hour to a couple of days.

1. Log phase

Also called the exponential phase. The cells double and new bacteria emerge. If the growth is not controlled, then the number of cells and the rate of population will increase proportionally with time (Murray, Rosenthal, & Pfaller, (2015). This kind of growth is exponential. Growth depends on the growth conditions and growth will continue indefinitely.

1. Stationary phase

This occurs as a result of an inhibiting factor like the depletion of nutrients. Here, growth rate and death rate tend to be equal, and cells created are limited.

1. Death phase

Also known as the decline phase. The bacteria die due to conditions like lack of nutrients, unfavorable climatic conditions, or various kinds of injury.

**Evaluate laboratory safety and aseptic technique**

Aseptic technique is about how to manually and mentally handle microorganisms. We learn how to prevent contamination of the organism for the personnel and the room (Talaro, & Chess, (2018). Some of the safety regulations include: wearing lab coats and gloves, no food in the lab; only lab equipment should be on the bench, tie back long hair, limited lab access, proper discarding of contaminated material, and the decontaminating of bench after use.

**Provide an analysis of how the course supported each objective**

the course gives an in-depth understanding of microbiology and its aim in the society. It also explains how diseases are spread and transmitted, proper lab usage, and how to prevent and to treat various diseases caused by microbes.

**How materials learned will be applicable professionally**

An individual gains knowledge to study microorganisms and become a microbiologist (Cowan, (2018). They conduct research, maintain and isolate bacteria cultures, classify microorganisms, monitor the effects of microorganisms on the environment, and prepare reports.

**What are microbes, and what is their relation to infectious disease?**

Pathogens are the type of microbes that cause disease. A pathogen is a micro-organism that can cause disease.

**What defenses does the human body have to combat infectious disease?**

The body has both the immune system and natural barriers. Natural barriers are like skin, tears, earwax, and stomach acid (Cowan, (2018). The immune system is like the white blood cells.

**What are some of the treatments associated with microbes that cause infectious disease?**

Some of the procedures involved include antibiotics, antivirals, antifungals, anti-parasitic, and the new kinds of treatments coming up.

**What infectious disease in the infectious disease profile series intrigued you the most? Why?**

Tuberculosis. This is one of the most feared infectious diseases. It is transmitted from person to person through the air (Talaro, & Chess, (2018). If infected individual coughs or sneezes in a public place, he or she is likely to contaminate someone else.

**What topic in the course did you find most interesting and applicable?**

The topic of vaccination. This is one of the surest ways to prevent infectious diseases. You can stay protected, even at a very young age.

**Thoughts on your learning in the course?**

The course was very informative and addressed the issue on microbiology on a detailed level, ensuring all students were able to clearly understand the topics specified.

References.

Talaro, K. P., & Chess, B. (2018). *Foundations in microbiology*. McGraw-Hill.

Murray, P. R., Rosenthal, K. S., & Pfaller, M. A. (2015). *Medical microbiology*. Elsevier Health Sciences.

Cowan, M. K. (2018). *Microbiology: a systems approach*. McGraw-Hill.