Chapter 1 Questions Instructions: Complete the questions from this page and submit them by the indicated due date. All answers must be in your own words. Section 1.1 on "The Scope of Microbiology". 1. If viruses are not considered "living organisms", what is an alternate way to define them? 1.2 on "The Impact of Microbes on Earth: Small Organisms with a Giant Effect". 2. What is meant by the last common ancestor? 3. Which type of nucleic acid has been important in redefining phylogeny of living organisms? 4. Based on what scientists know about microbes on earth, when did the first single-celled organisms come into existence? 5. Define ubiquitous Amoeba Sisters - Video on Bacteria https://www.youtube.com/watch?v=ORB866QSGv8 Section 1.4 on "Infectious Diseases and the Human Condition". 6. According to the most recent data from the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC), how many individuals in the U.S. died of influenza and pneumonia? How many individuals globally died of influenza and pneumonia? 7. Compare and contrast the terms microorganism and pathogen. 8. After reading this section, how would you describe the contribution of pathogens relative to all microorganisms in regards to their quantity? Section 1.5 on "The General Characteristics of Microorganisms". View the Khan Academy Video on Prokaryotic and Eukaryotic Cell Structure https://www.youtube.com/watch?v=xTnNv7YplSo 9. In your own words, compare and contrast prokaryotic cells versus eukaryotic cells. 10. Describe the components of viral structure. Viewing the image below from Section 1.5 complete the following question. 11. List the following groups of microbes in order from largest to smallest. (Bacteria, Virus, Helminth, Fungi, Protozoa/Protists) Read Section 1.6 on the Historical Foundations of Microbiology. 12. Who were the first known individuals to make observations of microbes? 13. Describe the components of the earliest microscopes? 14. Who is the "father of bacteriology and protozoology"? What was this persons primary occupation? 15. What is the Germ Theory of Disease? Read Section 1.7 on Naming, Classifying, and Identifying Microorganisms 16. Why is taxonomy and scientific nomenclature used to classify organisms rather than common names? 17. How many domains are there and what organisms do they include? 18. How is the criteria for classifying organisms different in the "trees of life" generated by Robert Whittaker compared to how organisms are classified now? Horizontal Gene Transfer - Also see the Amoeba Sisters Bacteria video above to view mechanisms like conjugation that can contribute to horizontal gene transfer. 19. What is horizontal gene transfer? What is the impact of horizontal gene transfer on the evolution of organisms? 20. Using the rules of binomial nomenclature for typing, correct the format of the nomenclature for the following organisms. escherichia coli b ANTHRACIS PLASMODIUM FALCIPARUM sTReptoCOccus PYOGENES