

Microbiology study guide assignment



**ASSIGN
BUSTER**

What is the theory of Spontaneous Generation: Theory that life just “spontaneously” developed from non-living matter. 8. Know the 3 major bacterial morphology types: Bacilli, Coccus, and Spiral. 9. Know the 5 types of Arrangements of bacteria: Soots, Streets, Diploid, Sardinia, and Tetras. 10. What types of bonds connect amino acids? Peptide Bonds 11.

What are the 4 levels of protein structure? Primary, Secondary, Tertiary, Quaternary 12. What is a macromolecule? Simple Sugars. Disaccharide? Two Inconsiders. Polysaccharide? A Chain of Inconsiders. 13. What are lipids and what are their functions in bacteria? They are fats and oils. They’re used to store energy and are the structure of the cell membrane and cell wall. 14. Know about Phospholipids: They’re complex lipids that are the main structural component of the cell membrane. 15. What are the two types of Nucleic acid? DNA (deoxyribonucleic acid) and RNA (ribonucleic acid) 16.

What are the basic techniques needed to study bacteria? Grow, Isolate, Grow in Pure Culture, and Identify. 17. Know the steps for preparing a slide for staining: Bacteria on Slide, Air Dry, Bacteria are HEAT FIXED to the slide, Stain is applied. 18. What characteristic about bacteria makes them attracted to the positive chromophores of basic dye? Bacteria are slightly negative, therefore they’re attracted to the positive chromosome. 19. Name some common dyes. Grams, Crystal Violet, Basic Fuchsin, Safranin, Methyl Blue. 20. What is the role of the Mordant in the staining process?

Give an example: It intensifies the stain or coats a structure to make it thicker and easier to see. An example would be a flagella b/c it normally

can't be seen but the mordant increases the diameter of the flagella before it is stained. 21. Why are Differential Stains important when you are trying to identify unknown bacteria? Because it reacts differently with different types of bacteria. 22. What are the two most common types of Differential Stains? Gram Stain and Acid-Fast 23. What two groups does the Gram Stain divide all bacteria into? Gram + and Gram - 24. Know the 4 steps of the Gram Stain: 1.

Crystal Violet 2. Iodine 3. Alcohol 4. Safranin 25. Know how to read the results of the Gram Stain. How does the difference in the cell wall make a difference? (Plate 14 of CHI 3): Gram + is Purple and has a thick wall. Gram - is Red and has a thin wall. 26. What two factors are important when identifying an unknown bacterium? Gram Reaction and Morphology 27. Know about the taint. What kind of bacteria does it do? Structure of the bacteria makes it acid-fast? (Plates 16 thru 19 of CHI 3): It's a preferential stain that divides bacteria into two groups called Acid-Fast and Non-Acid Fast.

It's used to identify organisms in the Genus Mycobacterium. 28. Know the difference between Prokaryotic and Eukaryotic cells. Know whether they contain a nucleus or not, if they have organelles, how they replicate (binary fission or mitosis), and what kind of chromosomes they contain. (Plate 2 of CHI 4): Prokaryotic Cells have no nucleus or organelles, they replicate by binary fission, and have 1 circular chromosome. Eukaryotic Cells have a nucleus and organelle, they replicate by mitosis, and they have linear chromosomes. 29. What is the Coaxially?

Describe the coxially if it is a Capsule. Describe the coxially if it is a Slime Layer. (Plate 6 of CHI 4): A Coxially is a substance that surround bacterial cells. If the substance is organized and firmly attached to the cell wall it is called a Capsule. If the substance is unrecognized and loosely attached to the cell wall it is called a Slime Layer. 30. What are the functions of the Capsule and name two bacterium that form capsules. (Plates 7 and 8 of CHI 4): 1 . Contribute to Virulence of bacteria by preventing historians by Web's 2. Prevents drying out or desiccation 3.

Allows bacteria to adhere to various surfaces such as enamel on teeth (Streptococcus mutants) and it attaches to the respiratory tract (Killable pneumonia). 31 . Are most Cisco bacteria motile? What about bacilli? (Plate 9 of CHI 4): Cisco are non-motile. About half of Bacilli are motile. 32. Be able to describe the arrangement of Flagella on bacteria I. E. Monotonous have one flagella, Amphitheatres have two flagella one on each end. Lubricious have several flagella on one end and Pernicious have multiple flagella al around the bacteria. 33.

What is the purpose of Flagella? They help with motility in prokaryotic cells 34. Describe what familiar are, what their purpose is and what kind of bacteria they are found on. (Plate 13 of CHI 4): Familiar are filamentous appendages that are shorter, straighter and more numerous than flagella. They are found mostly in Gram – bacteria and are used for attachment not motility. 35. The Gram positive cell wall contains pedagogical, Know that it is made up of a crystal lattice structure formed from linear chains of two alternating amino sugars NAME and NAG. (Plate 18 of CHI 4) 36.

The Gram Negative cell wall has a thin layer of peptidoglycan and a 2nd outer membrane. A major component of the outer membrane is Lipopolysaccharide or LPS. The LPS is made up of four components the O Antigen, the outer core, the inner core, and Lipid A. Know that the LPS contributes to the structural integrity of the bacteria and protects the membrane from certain chemical attacks. The O Antigen is a target for recognition, the most variable portion of LPS, and is antigen specific. The Lipid A portion of LPS anchors the LPS to the cell membrane and is responsible for much of the toxicity of Gram-negative bacteria.

When the cell wall is “lased” or broken up, fragments of the membrane that contain Lipid A can cause fever, diarrhea, or fatal nontoxic shock (septic shock)[E. Coli 057: HA] (Plate 19 of CHI 4) 37. Know what a Plasmid is and know what its’ role in auxiliary metabolic functions is in bacteria. (Plate 28 of CHI. 4) Two or more questions could come from each one to these points to study. Essay questions could come from points that ask you to “Describe” or where a lot of information is contained in the point to study.