

# Intro to microbiology assignment



**ASSIGN  
BUSTER**

Correct A. Organisms must be heat fixed before viewed in a hanging drop  
slide B. Smears are loop of medium spread on the surface of a glass slide C.  
Wet mount preparations give good views of microbial mobility D. The depth  
of a smear affects the results as too thin you may find no organisms

Question 10 of 12 2. 0 Points Three dimensional views of cells and other  
small objects could best be obtained using a A. Phase contrast microscope B.  
Dark-field microscope Incorrect C. Transmission electron microscope D.

Scanning electron microscope Question 11 of 12 5. Points What is the germ  
theory of disease? What did people believe caused disease to be transmitted  
before the germ theory of disease? Describe one experiment that supported  
the germ theory. Name an important innovation that arose from the germ  
theory of disease. The Germ theory states that actions of specific micro-  
organisms within the body cause many diseases. Prior to the Germ theory,  
many people believed that a disease was a punishment for a person's evil  
behavior or their sin's. One experiment that supported the germ theory was  
bottles of sour wine being contaminated with microbes.

Pasteur observed wine that had soured and compared it to wine that had  
not. He found that all soured wines contained larger numbers of cells. Yeast  
cells are required for fermentation of wine, so even great wine has yeast  
cells. Sour wine, however, was full of many smaller cells that were not yeast.  
Pasteur determined that the microbes, which had contaminated the wine,  
were the cause of the poor quality. The use of aseptic surgical techniques  
and sanitation in medical settings was a development that came from the  
Germ theory. The germ theory paved the way for better medical treatment.

Model Short Answer: The germ theory of disease posits that microbes invade other organisms and are the agents of disease. The belief was that microbes originated from non-living things. This concept was known as spontaneous generation. One experiment that supported the germ theory was by Francesco Redi who placed gauze over meat demonstrating that no flies could come out of the covered meat no matter how rotten it was. A critically important innovation that resulted from the germ theory of disease was Robert Koch's method of staining and identifying the bacterium that caused tuberculosis. Question 12 of 12 5.

Points Describe the gram stain. What does it distinguish? The Gram stain is a staining technique that is used to classify bacteria. The Gram stain is used to differentiate two large groups of bacteria based on their different cell wall constituents. The Gram stain distinguishes between Gram negative and Gram positive groups by coloring these cells violet or red. Gram positive bacteria will stain violet because of the presence of a thick layer of peptidoglycan in their cell walls. This layer will retain the crystal violet that the cells were stained with. On the other hand, Gram negative bacteria will stain red.

This is because their cell wall is thinner and does not retain the crystal violet.

Model Short Answer: The Gram stain was invented by Christian Gram. It is a commonly used differential stain where bacterial cells take up crystal violet then iodine is added to help certain cells retain the stain. Those cells that cannot retain violet are decolorized with 95% ethanol or ethanol-acetone solution, rinsed and counterstained with safranin. The Gram stain

distinguishes between four different groups of organisms which are: Gram-positive, gram-negative, gram-non reactive, and gram-variable organisms.