

BIOL 202 Introductory Microbiology Practice Questions

Chapter 1: A brief history of microbiology

- ____ 1) Which choice is NOT an **absolute must** for an organism to be considered “alive” versus “not-alive”?
 - A) adaptation to the environment
 - B) be composed of many cells working together
 - C) have each cell originate from a preexisting cell
 - D) conduct some level of metabolism

- ____ 2) Which of the following is also known as an acellular microbe?
 - A) Bacteria
 - B) Archaea
 - C) Viruses
 - D) Eukaryotes

- ____ 3) Approximately how many microbes are pathogenic (disease causing)?
 - A) 0.01% to 0.03%
 - B) 0.11% to 0.33%
 - C) 1% to 3%
 - D) 10% to 30%

- ____ 4) Which of the following is a member of the Eukaryotes?
 - A) Prokaryotes
 - B) Archaea
 - C) Viruses
 - D) Protozoa

- ____ 5) Radiometric age dating of the oldest known terrestrial and lunar samples have aged both the Earth and Moon at _____.
 - A) 4,500 years old
 - B) 450,000 thousand years old
 - C) 4.5 million years old
 - D) 4.5 billion years old

- ____ 6) The oldest known microbes are found in what kind of material?
 - A) Glass
 - B) Quartz
 - C) Stromatolites
 - D) moon rocks

- ____ 7) Which location has the oldest known written records documenting microbe diseases like tuberculosis, & Guinea worm?
 - A) Saudia Arabia
 - B) Egypt
 - C) England
 - D) Germany

- ____ 8) Who had his works preserved for future generations by Arabian scholars?
 - A) Aristotle
 - B) Imhotep
 - C) Leeuwenhoek
 - D) Hooke

- ____ 9) Who wrote the book *Micrographia*, in which was coined the word “cell” with an accompanying sketch of the cork plant?
 - A) Antony van Leeuwenhoek
 - B) Jan Swammerdam
 - C) Robert Hooke
 - D) Robert Brown

- ____ 10) Who first described the fluid movement inside cells, and also coined the word “nucleus” while looking at orchid cells?
 - A) Antony van Leeuwenhoek
 - B) Jan Swammerdam
 - C) Robert Hooke
 - D) Robert Brown

- ____ 11) Which team of scientists determined the nucleus divides before the rest of the cell, and named the stages of mitosis?
 - A) Matthias Schleiden & Theodor Schwann
 - B) Rudolf Albert Kölliker & Walther Flemming
 - C) Antony van Leeuwenhoek & Robert Hooke
 - D) Aristotle & Hippocrates

- _____12) The “Dark Ages”, during which a dip in the population occurred due to the Bubonic Plague occurred during what time?
A) The Modern Age
B) The Middle Ages
C) The Iron Age
D) The Bronze Age
- _____13) Which of the following was not a suspected source of the Bubonic Plague bacteria *Yersinia pestis*?
A) infected humans
B) rats
C) fleas
D) mushrooms
- _____14) Which of the following was the most likely visible symptom many people had with the Bubonic plague infection?
A) fingers falling off
B) enlarged painful lymph nodes
C) head to toe rash
D) headache
- _____15) What did the mayor of London order be done to head off a fresh outbreak of Plague in 1666?
A) all wool was burned
B) all criminals shipped to Australia
C) no ships allowed into port
D) all the cats and dogs were killed
- _____16) What location in the continental United States is the most likely location to get infected with the Bubonic Plague today?
A) desert in the southwest
B) forest in the northwest
C) beaches in the southeast
D) great lakes in the northeast
- _____17) Skeletal remains were used to document the arrival of what disease to Europe from the New World after Columbus’ visit?
A) Guinea Worm
B) Syphilis
C) Bubonic Plague
D) Small Pox
- _____18) Spontaneous Generation was ultimately disproven by what scientist and his swan-neck flask?
A) Francesco Redi
B) John Needham
C) Lazzaro Spallanzani
D) Louis Pasteur
- _____19) Who was the first to scientifically demonstrate that bacteria can cause disease?
A) Robert Koch
B) Louis Pasteur
C) Francesco Redi
D) Lazzaro Spallanzani

Chapter 2: Viewing the Microbial World

- ____1) Which of the following is most likely the smallest?
A) human red blood cell
B) *E. coli* bacteria
C) Smallpox virus
D) ribosomes
- ____2) What can see the smallest things with the greatest resolution?
A) compound light microscope
B) simple microscope
C) scanning electron microscope
D) transmission electron microscope
- ____3) Which color of visible light has the smallest wavelength?
A) Red
B) Violet
C) Yellow
D) Green
- ____4) What has wavelengths smaller than X-rays?
A) Microwaves
B) Gamma rays
C) Ultraviolet Light
D) Infrared rays
- ____5) The difference in intensity between two objects or between an object and its background is _____.
A) Contrast
B) Resolution
C) Parfocalism
D) Refraction
- ____6) Which property of light allows you to see the color of objects because a specific wavelength is bounced off the object?
A) Transmission
B) Reflection
C) Fluorescence
D) Refraction
- ____7) Which example of light absorption is where UV light is absorbed, then reemitted as luminescence without constant light?
A) the color black
B) the color white
C) fluorescent
D) phosphorescent
- ____8) What is the useful maximum magnification of a light microscope?
A) 40 X
B) 100 X
C) 400 X
D) 1000 X
- ____9) What objective lens is the longest?
A) 4 X
B) 10 X
C) 40 X
D) 100 X
- ____10) Which choice is likely looking at a dead organism?
A) simple microscope with no stain
B) compound microscope with simple stain applied
C) Dark-Field Microscope with no stain
D) Phase-Contrast Microscopy with no stain
- ____11) Electron microscopes use _____ to magnify the image.
A) glass lenses
B) vacuum
C) electromagnets
D) electrons

Chapter 3: Cell Structure and Taxonomy

- _____ 1) Which of the following is FALSE regarding Prokaryotes
A) it is one of the 3 Domains of life
B) it includes Archaea
C) they lack a nucleus
D) they lack internal membrane-bound organelles
- _____ 2) Which of the following is FALSE regarding Eukaryotes
A) it includes fungi
B) some species have mitochondria and chloroplasts
C) some species have a cell wall and a nucleus
D) most are smaller than the Prokaryotes
- _____ 3) Where is the Glycocalyx?
A) on the inside of the plasma membrane
B) on the outside of the plasma membrane
C) on the inside of the nuclear membrane
D) on the outside of the nuclear membrane
- _____ 4) Which of the following choices (if present) gives an organisms more virulence (i.e., makes it more dangerous to the host)?
A) 70S Ribosomes
B) a nuclear envelope
C) a capsule
D) a cell wall
- _____ 5) Which choice has flagella that are hollow and rotate counterclockwise to cause runs?
A) some Bacteria
B) some viruses
C) some fungi
D) some Archaea
- _____ 6) Which term means movement toward a chemical at a higher concentration?
A) Positive Chemotaxis
B) Negative Chemotaxis
C) Positive Phototaxis
D) Negative Phototaxis
- _____ 7) Which flagella arrangement is a "tuft" of flagella at one end only?
A) Peritrichous
B) Monotrichous
C) Lophotrichous
D) Amphitrichous
- _____ 8) Organisms with endoflagella have _____.
A) many flagella all over its surface
B) many flagella at the "front" and "back" only
C) flagella at both ends that also spiral tightly around the cell
D) one flagella at one end only
- _____ 9) What is a pilus primarily used in bacteria for?
A) sticking to rocks, and pipes
B) transporting genetic material to a new cell
C) hiding from the host's immune system
D) movement
- _____ 10) Peptidoglycan is the primary component of what cell structure?
A) Cell Membrane
B) Nuclear Membrane
C) Cell Wall
D) Vacuoles
- _____ 11) Gram-Positive cells have which of the following?
A) lipopolysaccharides
B) lipoteichoic acids
C) outer plasma membrane
D) thin layer of peptidoglycan

- _____ 12) Which of the following can break off dead cells and cause shock, blood clotting, fever & inflammation?
A) lipopolysaccharides
B) lipoteichoic acids
C) the plasma membrane
D) peptidoglycan
- _____ 13) *Mycoplasma pneumoniae* is a bacteria cell that lacks _____, and in part because of that, is very, very small.
A) a nuclear area
B) cytoplasm
C) a cell wall
D) ribosomes
- _____ 14) Which cellular structure is highly resistant to heat, drying, radiation, and chemical exposure?
A) cell wall
B) cell membrane
C) endospore
D) ribosome
- _____ 15) A 70S ribosome breaks apart into what two subunits?
A) 30S and 40S
B) 30S and 50S
C) 40S and 50S
D) 40S and 60S
- _____ 16) What does a hamus look like?
A) clumps of hair
B) a fish hook
C) round balls
D) a snake
- _____ 17) Which taxonomic rank is just after Class (i.e., *from largest to smallest*) and divides it up into smaller groups?
A) Species
B) Order
C) Family
D) Kingdom

Chapter 4: Microbial Diversity Part 1: Acellular & Prokaryotic Microbes. General Staining Techniques.

- _____ 1) The part of a virus which is taken from the host cell's cytoplasmic membrane is which part?
A) Capsid
B) Capsomeres
C) Envelope
D) Negative Stranded RNA
- _____ 2) Most "typical" DNA viruses will have the following features EXCEPT?
A) single-stranded DNA
B) Icosahedral Symmetry
C) replication in the nucleus of the host
D) half are enveloped and the other half are naked
- _____ 3) Which of the following is a long string of spherical cells (i.e., like a pearl necklace)?
A) Diplococci
B) Streptococci
C) Tetrad
D) Staphylococci
- _____ 4) Which of the following uses only one color in its stain?
A) Gram Stain
B) Acid-Fast Stain
C) Simple Stain
D) Endospore Stain
- _____ 5) Staining microorganisms has one major down-side. What is it?
A) It makes other debris (like dirt) visible
B) It destroys the cell morphology
C) It kills the microbe
D) It is very expensive
- _____ 6) The Gram Stain uses a "Mordant" to ensure the primary stain sticks well to Gram-Positive cell walls. What is the Mordant in the Gram Stain?
A) crystal violet
B) iodine
C) ethanol
D) safranin
- _____ 7) A Gram-Positive cell is what color?
A) Green
B) Red
C) Pink
D) Purple
- _____ 8) A Gram-Positive cells and Gram-negative cells primarily retain their color in what part of the cell?
A) cytoplasm
B) nucleoid material
C) cell membrane
D) cell wall
- _____ 9) Which step of the Gram stain is considered the Mordant?
A) Crystal Violet
B) Gram's Iodine
C) Acid Alcohol
D) Safranin
- _____ 10) Which of the following stains requires steaming the Malachite Green in order for it to penetrate the outer parts of the cell?
A) Gram Stain
B) Acid-Fast Stain
C) Simple Stain
D) Endospore Stain
- _____ 11) A virus is not considered to be a "living organism" because it:
A) does not grow
B) has no internal metabolism
C) lacks a cytoplasmic membrane
D) all of the above

Chapter 5: Microbial Diversity Part 2: Eukaryotic Microbes: Algae, Protozoa, Fungi, Lichens, Slime Moulds.

- ____1) A foul smelling greasy (fatty) diarrhea is most likely going to occur with what infection?
A) Malaria
B) *Giardia lamblia*
C) *Cryptosporidium*
D) Lichens
- ____2) The _____ is a light-sensing organelle that can help direct an organism move toward or away from a light source.
A) pellicle
B) plastid
C) scintillion
D) stigma
- ____3) Diatoms, a type of algae, have a cell wall made out of _____.
A) peptidoglycan
B) silicon dioxide
C) phospholipids
D) chitin
- ____4) Dinoflagellates have a bioluminescent property due to what organelle?
A) pellicle
B) plastid
C) scintillion
D) stigma
- ____5) *Prototheca wickerhamii* is the only known green algae that causes a disease in humans. It is also a saprophyte. What activity listed below has the highest chance of contracting the infection?
A) changing your car's oil
B) digging up a dead tree stump with your hands
C) changing a baby diaper
D) cleaning a cat box
- ____6) *Entamoeba histolytica* can be lead to abscess in what organ?
A) Kidney
B) Brain
C) Liver
D) Heart
- ____7) *Naegleria fowleri* is most likely going to infect and destroy tissue from what organ?
A) Kidney
B) Brain
C) Liver
D) Heart
- ____8) Which of the following is FALSE regarding *Trichomonas vaginalis*?
A) it is sexually transmitted
B) it is due to a protozoal infection
C) the discharge will be clear, non-burning, and odorless
D) females will have more symptoms than males
- ____9) Fungi can do all of the following EXCEPT:
A) Photosynthesis
B) digest a dead animal
C) digest a dead plant
D) process beer
- ____10) Dermatophytosis can affect many locations on the body's skin. Which location is an infection affecting the groin?
A) Tinea cruris
B) Tinea pedis
C) Tinea capitis
D) Tinea unguium
- ____11) *Sporothrix schenckii* infections can most likely be caught by what activity?
A) caring for birds
B) arranging roses
C) swimming in a pond
D) eating lichens

- _____ 12) Many species of fungi are dimorphic and form branching hyphae or yeast cells at different temperatures. At what temperature do most begin to grow in the YEASTS form?
- A) 0 °C
 - B) 25 °C
 - C) 37 °C
 - D) 100 °C
- _____ 13) Contact with a cat's litter box is mostly associated with what disease-causing organism?
- A) Malaria
 - B) *Toxoplasma gondii*
 - C) *Cryptosporidium*
 - D) *Giardia lamblia*
- _____ 14) *Phytophthora infestans* is a fungal infection famous for what?
- A) causing a large population of people in Wisconsin to get diarrhea.
 - B) causing the Great Potato Famine.
 - C) causing the largest fish-kill in the United States.
 - D) causing the infection in Mark Tatum that led to the surgery where his face was removed.

Chapter 8: Controlling Microbial Growth *in Vitro*

- _____1) The main difference between the definitions of Antisepsis and Aseptic is _____.
- A) the kind of microorganisms left on a surface
 - B) the number of microorganisms left on a surface
 - C) the infectivity potential of microorganisms left on a surface
 - D) the Gram stain result of microorganisms left on a surface
- _____2) Degerming methods all involve what basic property?
- A) temperature
 - B) light
 - C) abrasion forces
 - D) electrical forces
- _____3) Sterilization by autoclaving might not destroy which of the following?
- A) Bacteria
 - B) Viruses
 - C) Protozoa
 - D) Prions
- _____4) Milk you buy in the store is prepared for safe consumption by _____ before it is refrigerated.
- A) boiling
 - B) autoclaving
 - C) pasteurization
 - D) desiccation
- _____5) The constant percentage of a microbial population killed each minute is a way to evaluate the efficacy of a particular antimicrobial product. What is this called?
- A) Microbial Death Rate
 - B) Microbial Stasis Rate
 - C) Replication Rate
 - D) Microbial Half-Life
- _____6) What choice has the highest susceptibility to antimicrobial agents (i.e., is the "easiest to kill")?
- A) Enveloped viruses
 - B) Bacterial endospores
 - C) Fungi
 - D) Gram-negative bacteria
- _____7) Which choice below is a moist heat method that can also sterilize?
- A) boiling
 - B) autoclaving
 - C) pasteurization
 - D) desiccation
- _____8) To pasteurize a product faster, you primarily have to do what?
- A) lower the temperature
 - B) increase the temperature
 - C) lower the pressure
 - D) increase the pressure
- _____9) Psychrophilic microbes are most likely going to be found where?
- A) Hospital psych ward bedding
 - B) Fortuneteller's crystal ball
 - C) Vegetable crisper in the fridge
 - D) Oven
- _____10) Eye medications and antibiotics can be sterilized by _____ without denaturing them.
- A) boiling
 - B) autoclaving
 - C) desiccation
 - D) filtration
- _____11) Microbes do not grow easily in a jar of salt or sugar due to what method of microbial growth control being present?
- A) lack of nutrients
 - B) extreme temperatures
 - C) osmotic pressures
 - D) barometric pressure

- _____12) The radura symbol is put on products that have been _____.
- A) pasteurized
 - B) irradiated
 - C) boiled
 - D) desiccated
- _____13) Ethylene oxide gas would most likely be used to sterilize what?
- A) hospital lunch trays for patients
 - B) hospital IV pump
 - C) skin before surgery
 - D) pills
- _____14) Which method of sterilization is expensive, potentially explosive and carcinogenic?
- A) autoclaving
 - B) pasteurization
 - C) ethylene oxide
 - D) desiccation
- _____15) Copper pipes are good at controlling _____ growth because the heavy metal interferes with the proper functioning of chlorophyll.
- A) fungi
 - B) bacteria
 - C) viruses
 - D) algae

Chapter 9: Controlling Microbial Growth *in Vivo*

- ____1) The target of Penicillin is what structure?
A) ribosomes
B) cell wall
C) cell membrane
D) nucleus
- ____2) Surfactants, like soap, have hydrophilic and hydrophobic ends which are good at _____.
A) breaking covalent bonds in cell walls
B) breaking covalent bonds in cytoplasmic membranes
C) breaking hydrogen bonds between water molecules
D) breaking ribosomes apart
- ____3) A drug that block new NAM-NAM cross linkages would most likely have its effect at what location?
A) the ribosomes
B) the cell wall
C) the nucleoid area
D) the cytoplasmic membrane
- ____4) Which drug's mechanism of action would most likely have the LEAST human side effects?
A) an expensive one
B) one that targets the 50S ribosomal subunit only
C) one that targets the phospholipids of the cell membrane
D) one that is fast-acting
- ____5) Thalidomide became an over the counter drug in Germany in 1957 that many women used to control morning sickness. There were 5000 to 7000 births with malformed limbs linked to the drug and many of the babies (nearly half) died. It has since been labeled as Pregnancy Category _____.
A) A
B) B
C) C
D) D
E) X
- ____6) What is the Kirby-Bauer Test used for?
A) to determine the Pregnancy Category of a new antibiotic
B) to determine the effectiveness of a new antibiotic against specific microbes
C) to determine how an antibiotic works
D) none of the above
- ____7) Which of the following targets of a new drug is likely to cause lots of human side effects?
A) a new drug binds the 50S ribosome subunit
B) a new drug binds the 30S ribosome subunit
C) a new drug binds the entire 70S ribosome
D) a new drug binds the 40S ribosome subunit
- ____8) Sulfa drugs work by blocking the synthesis of _____, which is needed to make DNA and RNA.
A) Folic Acid
B) Phospholipids
C) Peptidoglycan
D) ATP
- ____9) How do you slow the development of drug resistance in microorganisms.
A) use 1st generation drugs over 3rd generation drugs
B) use antimicrobials only when necessary
C) use drugs that cost more money
D) wide-spectrum drugs
- ____10) β -lactamase breaks a bond in the Lactam ring rendering _____ an ineffective medication.
A) Sulfa Drugs
B) Heavy Metals
C) Quinolones
D) Penicillin
- ____11) Malaria parasites are sensitive to _____ which disrupt their metabolism.
A) Sulfa Drugs
B) Heavy Metals
C) Quinolones
D) Penicillin

- _____12) One of the three ingredients in Neosporin that disrupts the cytoplasmic membrane of Gram Negative bacteria is _____.
- A) Neosporin
 - B) Fluconazole
 - C) Quinolones
 - D) Polymyxin
- _____13) Amphotericin B is a anti-fungal drug that attaches to _____.
- A) ATP
 - B) Ergosterol
 - C) DNA
 - D) ribosomes
- _____14) Which of the following is TRUE?
- A) there is little evidence that the use of antibiotics in over the counter hand soaps adds to human health.
 - B) washing your hands for over 2 minutes makes them sterile.
 - C) antibiotics in hand soap will not lead to antimicrobial resistance.
 - D) soaps mostly break covalent double bonds.
- _____15) Which drug below does NOT alter protein synthesis due to various mechanisms at the ribosome?
- A) Streptomycin
 - B) Tetracycline
 - C) Fluconazole
 - D) Erythromycin
- _____16) The E-test is _____.
- A) for determining the pregnancy category of a drug.
 - B) a combination of the Kirby-Bauer and Minimum Inhibitory Concentration Tests
 - C) for determining the spectrum activity of an antibiotic (broad-spectrum vs. narrow-spectrum).
 - D) for determining the mechanism of action of a drug.
- _____17) Flagyl is known for occasionally causing a "Black Hairy Tongue" when treating an infection. This is an example of _____.
- A) a Category X drug reaction
 - B) a rare side effect
 - C) an allergic reaction
 - D) a normal reaction
- _____18) Prionzymes might be needed to digest prion contamination of surgical instruments used in _____ surgery.
- A) Bladder
 - B) Spleen
 - C) Brain
 - D) Heart
- _____19) Mercury, Antimony, and Arsenic are examples of drugs that work by _____.
- A) disrupting cytoplasmic membranes.
 - B) blocking cell wall repair.
 - C) altering protein synthesis.
 - D) inhibition of metabolic pathways in cells.
- _____20) The tube with the minimum inhibitory concentration dosage should be _____.
- A) clear
 - B) cloudy
 - C) partly cloudy
 - D) full of sediments and plaques.
- _____21) Which method of administration of a drug has the longest time till peak blood concentration after the administration of it?
- A) Intravenous
 - B) Intramuscular
 - C) Oral
 - D) None of the Above, they all reach peak concentration at very similar times.

Chapter 10: Microbial Ecology & Microbial Biotechnology

- _____1) Symbiont A and Symbiont B have a type of symbiosis defined as Neutralism. Neutralism must include all of the following basic features EXCEPT:
- A) symbiont A and symbiont B are living in the same ecologic niche
 - B) symbiont A and symbiont B are of similar size
 - C) symbiont A and symbiont B are not affected by the symbiotic relationship in any measurable or known way
- _____2) Many of the microorganisms of our normal flora obtain nutrients and a suitable place to live on our bodies, but provide us no measurable benefit or harm. What kind of symbiotic relationship is this?
- A) Parasitism
 - B) Mutualism
 - C) Commensalism
 - D) Neutralism
- _____3) A common way *E. coli* can go from being a mutualistic symbiont under normal circumstances to being an opportunistic pathogen is by:
- A) gaining access to the urethra
 - B) gaining access to the colon
 - C) having the *E. coli* produce vitamins useful to the host
 - D) *E. coli* antagonizing the growth of other bacteria by producing toxic proteins
- _____4) All of the following are methods whereby opportunistic pathogens can lead to infections EXCEPT:
- A) a female forgetting to pee after vaginal intercourse
 - B) taking an antibiotic that only kills some of the bacteria in your colon
 - C) taking a steroid medication (which lowers your immune system's effectiveness)
 - D) properly swabbing the skin to kill all microbes on it before drawing blood
- _____5) What is the main reason that the populations of normal flora microbes in the vagina of pre-pubescent girls and child-bearing women are so different?
- A) hormone changes
 - B) pH changes
 - C) increases in sexual activity
 - D) dietary changes
- _____6) Which of the following is FALSE regarding Parasitism?
- A) an organism that is a parasite could also be referred to as a pathogen
 - B) the ideal parasite causes as little harm as possible to the host
 - C) parasitism is form of symbiosis that is the most common
 - D) over time, coevolution of the host and parasite can change the symbiosis from parasitism to mutualism or commensalism
- _____7) A bacteria released by the gut of a round worm after it has been swallowed (but not killed) by a termite begins to liquify the contents of the termite. The round worm eats the liquified contents and releases new offspring which ingest some of the bacteria before they exit the insect's carcass. Working together, the bacteria and the worm find food and multiply their numbers. What is the relationship between the roundworm and the bacteria?
- A) Parasitism
 - B) Mutualism
 - C) Commensalism
 - D) Neutralism
- _____8) Approximately at what age does a person have the entire body fully colonized with the normal flora?
- A) as soon as the placenta is fully developed
 - B) at 2 months of fetal development
 - C) at 2 months of age
 - D) by the age of 2 years old
- _____9) Which of the following is TRUE regarding "transient microorganisms"?
- A) most are in a location for years before they go away
 - B) they are typically found in areas that should be sterile
 - C) a normal immune system is typically what controls their numbers
 - D) competition from other normal flora microbes has no effect on their population
- _____10) To make wine, what step creates the "must"?
- A) crushing and steaming the grapes
 - B) fermenting
 - C) clarification
 - D) aging

- _____ 11) When making cheese, what step is done to cause the formation of the curd?
- A) pasteurizing the milk
 - B) adding the starter bacterial cultures
 - C) aging the cheese
 - D) cutting the cheese
- _____ 12) A beneficial normal flora bacteria that is commonly found in the mouth, stomach, intestines, and vagina is:
- A) *Helicobacter pylori*
 - B) *Lactobacillus***
 - C) *Campylobacter jejuni*
 - D) *Pseudomonas aeruginosa*
- _____ 13) The nose is a location where different species of normal flora microorganisms tend to grow well versus in other locations (such as in the mouth or in the gut) due to what main factor?
- A) it is cooler**
 - B) it is wetter
 - C) it is saltier
 - D) it is more acidic
- _____ 14) The gut is a location where many of the normal flora microbes are able to grow well versus in other locations due to what main factor?
- A) it is cooler in the gut
 - B) it is wetter in the gut
 - C) there is very little oxygen in the gut**
 - D) it is very salty in the gut
- _____ 15) Which part of the urinary system is usually NOT 100% completely sterile under normal circumstances?
- A) Kidneys
 - B) Ureters
 - C) Bladder
 - D) Urethra**
- _____ 16) Which area of the skin would be more likely to have the most numbers and highest species variety?
- A) dry & hairless
 - B) dry and hairy
 - C) sweaty & hairless
 - D) sweaty & hairy**

Chapter 11: Epidemiology & Public Health

- ____ 1) Epidemiology would study which of the following?
- A) diseases
 - B) accidents
 - C) habits
 - D) all of the above
- ____ 2) Which disease category crosses oceans and country borders?
- A) Sporadic
 - B) Endemic
 - C) Epidemic
 - D) Pandemic
- ____ 3) Which disease category is expected to be present at an expected rate within a population?
- A) Sporadic
 - B) Endemic
 - C) Epidemic
 - D) Pandemic
- ____ 4) If North Dakota expects to have 200 Chlamydia cases in the year 2013, but instead has 400 — and none of these cases affect Canada nor the neighboring states, what is this disease category called?
- A) Sporadic
 - B) Endemic
 - C) Epidemic
 - D) Pandemic
- ____ 5) If a disease is ONLY mode of transmission is by sexual intercourse, and a virgin asks which part of the Chain of Infection is "broken" by remaining abstinent, you respond by saying, "It is the _____ which is the link that is broken."
- A) lack of the verified existence of a specific pathogen to cause the sexually transmitted disease.
 - B) lack of a source of the pathogen or reservoir
 - C) lack of a portal of exit out of the reservoir
 - D) lack of a portal of entry into the new host for the pathogen
 - E) lack of a susceptible host
- ____ 6) Typhoid Mary got Salmonella, was sick for a while, then got better. However, she kept passing the disease to others and got many people quite sick. What carrier type is Typhoid Mary?
- A) Passive
 - B) Incubatory
 - C) Convalescent
 - D) Active
- ____ 7) Why is a flocculant, such as alum, added during the treatment of water?
- A) to encourage suspended particles to sink
 - B) to keep the pipes free of bacteria
 - C) to remove slime layers off the walls of pipes and the tanks
 - D) to disinfect the water before it is sent to your sink faucet
- ____ 8) There is a large coliform count detected in the water coming out of your kitchen sink. What does this mean?
- A) the water is safe to drink
 - B) enough chlorine was added at the water treatment plant
 - C) the water is sterile
 - D) the water is contaminated by feces

Chapter 13: Diagnosing Infectious Diseases & Chapter 14: Pathogenesis of Infectious Diseases

- ____ 1) Which type of clinical specimen is NOT from the Gastrointestinal System?
A) Feces sample
B) Throat swab
C) Bronchial Wash
D) Scotch Tape Test
- ____ 2) Before blood is collected by venipuncture, which step in preparing the site is described INCORRECTLY?
A) use a disinfectant such as 70% isopropyl alcohol and an iodophor such as iodine to clean the skin
B) scrub the skin with the disinfectant starting at the periphery and working toward the site to be punctured
C) if you are drawing blood cultures, also disinfect the rubber top of the vial before injecting blood into it
D) if you sneeze on the area for the venipuncture, apologize and start the disinfectant process all over again.
- ____ 3) Which of the following four phases of infection is 3rd?
A) Incubation Period
B) Prodromal Period
C) Period of Illness
D) Convalescent Period
- ____ 4) Which virulence factor makes it easier for a microbe to reach other areas of your body
A) Coagulase
B) Pili
C) Flagella
D) Lipopolysaccharide (LPS)
- ____ 5) Which is a common symptom of a external ear infection?
A) swollen ear drum and canal seen on otoscope exam
B) ear pain reported as 8 out of 10
C) visible drainage in ear canal
D) swollen lymph nodes in the neck on exam
- ____ 6) Because blood is sterile, it is vital that before venipuncture:
A) the person drawing blood washes their hands
B) a circular motion is used to mechanically de-germ the venipuncture site
C) the site on the patient is disinfected with 70% isopropyl alcohol and iodine
D) all of the above
- ____ 7) What does the term “clean catch” mean when collecting a urine specimen?
A) the patient washes their hands with soap and water
B) the patient washes out the collection cup with soap and water
C) the patient washes the urethral opening and surrounding area with soap and water
D) the lab tech washes their hands with soap and water
- ____ 8) What colony count value do you need to be above for the urine culture result to be considered indicative of a urinary tract infection?
A) 1 CFU/mL
B) 100 CFU/mL
C) 1000 CFU/mL
D) 100,000 CFU/mL
- ____ 9) Sputum is a sample that originates from the _____.
A) nose
B) salivary glands of the mouth
C) lungs
D) none of the above

Chapter 18: Viral Infections

- _____ 1) The bacteria *Yersinia pestis* and the Hantavirus have what factor in common?
A) both can be carried and transmitted by local rodents
B) most cases of both in the United States are in the Southwestern states
C) both are highly likely to kill you if you get infected
D) All of the above
- _____ 2) Koplik's Spots in the mouth, a high fever and a rash that spreads from head to toe is characteristic of what viral illness?
A) Herpes Simplex Type 1
B) Measles
C) Chickenpox
D) Small Pox
- _____ 3) Mumps is a viral illness that tends to show up in what location?
A) Brain tissues
B) Testicles (if the patient is a male)
C) Parotid Gland in the face
D) All of the Above
- _____ 4) What shape is the Capsid in Rabies?
A) Icosahedral
B) Barbell
C) Bullet
D) None of the Above
- _____ 5) Which of the following is TRUE regarding rabies?
A) most people who get it will recover spontaneously
B) the infection is located in the brain
C) there is no vaccination for it
D) it is only transmitted by scratches from infected animals
- _____ 6) Which of the following is NOT a virus that causes hemorrhagic fever?
A) Marburg
B) Epstein-Barr Virus
C) Ebola
D) Hantavirus
- _____ 7) For the viruses Herpes Simplex Type 1 and 2, each has the following characteristics EXCEPT:
A) A Tzank Prep of the sores can reveal multinucleated giant cells and intranuclear inclusion bodies
B) Valtrex (Valacyclovir) is a common treatment
C) each has a portion of their life cycle inside nerve cells
D) the virus is only able to be transmitted in people with skin sores (lesions)
- _____ 8) Where is Herpetic Whitlow's infection located?
A) Fingers
B) Eyes
C) Brain
D) Liver
- _____ 9) Which of the following symptoms of Mononucleosis is possibly life-threatening if a person plays a contact sport during the infection or even for a few months afterwards?
A) Fever
B) Enlarged Lymph Nodes
C) Enlarged Spleen
D) Tiredness
- _____ 10) Which wart Strains are common with Cervical Cancer?
A) 16, 18
B) 1, 2
C) 4, 7
- _____ 11) Which of the following enabled the virtual elimination of the Smallpox virus?
A) It only infects humans
B) those infected have easily noticeable skin lesions
C) effective vaccinations
D) All of the Above

Chapter 19: Bacterial Infections

- ____ 1) What type of JOB would have a much higher risk of contracting cutaneous Anthrax, leading to the large skin sores called eschars, which are formed from the bacteria's secreted necrotoxin?
A) Army Private
B) Postal Worker
C) Sheep Rancher
D) Pigeon Breeder
- ____ 2) Which of the following soil bacteria leads to Infants getting paralysis from eating unpasteurized honey?
A) *Clostridium perfringens*
B) *Clostridium tetani*
C) *Clostridium botulinum*
D) *Mycoplasma pneumoniae*
- ____ 3) Which of the following soil bacteria can get into skin wounds (such as a war wound) and cause Gas Gangrene?
A) *Clostridium perfringens*
B) *Clostridium tetani*
C) *Clostridium botulinum*
D) *Mycoplasma pneumoniae*
- ____ 4) Which of the following disease-causing bacteria can be prevented from causing its infection by getting a Tetanus shot?
A) *Clostridium perfringens*
B) *Clostridium tetani*
C) *Clostridium botulinum*
D) *Mycoplasma pneumoniae*
- ____ 5) Which bacteria is transmitted by human contact with the infected skin wounds and is only known to infect humans, but can be researched in armadillos?
A) *Mycobacterium leprae*
B) *Mycobacterium tuberculosis*
C) *Staphylococcus aureus*
D) *Staphylococcus epidermidis*
- ____ 6) Which bacteria is highly resistant to antibiotics, is normal flora on human skin, and is a frequent contaminant that gets into blood work obtained with poor skin preparation technique?
A) *Mycobacterium leprae*
B) *Mycobacterium tuberculosis*
C) *Staphylococcus aureus*
D) *Staphylococcus epidermidis*
- ____ 7) Impetigo, Skin Abscesses, Toxic Shock Syndrome, Urinary Tract Infections and even Food Poisoning are all possible infectious diseases caused by what bacteria?
A) *Mycobacterium leprae*
B) *Mycobacterium tuberculosis*
C) *Staphylococcus aureus*
D) *Staphylococcus epidermidis*
- ____ 8) Which bacteria causes Scarlet Fever and Rheumatic Fever? Also, a history of these infections is one reason a dentist may require you to take antibiotics before any dental procedure.
A) *Streptococcus pyogenes*
B) *Streptococcus viridans*
C) *Staphylococcus aureus*
D) *Staphylococcus epidermidis*
- ____ 9) Dental Cavities are caused by what bacteria that is also part of the normal flora of the mouth?
A) *Streptococcus pyogenes*
B) *Streptococcus viridans*
C) *Staphylococcus aureus*
D) *Staphylococcus epidermidis*
- ____ 10) A pseudomembrane will form in the back of the throat making it difficult to breath in children with what bacterial infection?
A) *Streptococcus pyogenes*
B) *Streptococcus viridans*
C) *Corynebacterium diphtheriae*
D) *Mycoplasma pneumoniae*

- _____ 11) Which bacteria has NO cell wall, and causes a mild, dry hacking cough and a fever, but most adults with it are still able to walk around and do some minimal stuff versus stay in bed all day or need to be hospitalized?
- A) *Streptococcus pyogenes*
 - B) *Bordetella pertussis*
 - C) *Corynebacterium diphtheriae*
 - D) *Mycoplasma pneumoniae*
- _____ 12) Pertussis is a bacteria infection of what part of the body?
- A) the skin
 - B) the trachea and lungs
 - C) the eyes
 - D) the penis or vagina
- _____ 13) In what unique reservoir is *Legionella pneumophila* found?
- A) air conditioners
 - B) raw honey
 - C) unpasteurized milk
 - D) bird poop
- _____ 14) Which bacteria can cause ulcers in the stomach and the duodenum portion of the small intestine?
- A) *Streptococcus pyogenes*
 - B) *Bordetella pertussis*
 - C) *Corynebacterium diphtheriae*
 - D) *Helicobacter pylori*
- _____ 15) The meningitis caused by *Neisseria meningitidis* is found in all the following High-Risk Groups EXCEPT?
- A) Infants age 6 months to 2 years old
 - B) College Dorms
 - C) Forestry Workers
 - D) Military Boot Camps
- _____ 16) At one of the last appointments with a pregnant woman's obstetrician, the vagina and anal area are sampled for a specific bacteria that is present in 25% of women. This bacteria can cause severe disease if the baby is exposed to it during the birthing process and can lead to diseases such as Neonatal meningitis, pneumonia and sepsis. What bacteria is this?
- A) *Streptococcus pyogenes*
 - B) *Streptococcus agalactiae*
 - C) *Staphylococcus aureus*
 - D) *Staphylococcus saprophyticus*
- _____ 17) Which bacteria is the most common cause of urinary tract infections in sexually active women and can be prevented by the woman peeing after sex?
- A) *Streptococcus pyogenes*
 - B) *Streptococcus agalactiae*
 - C) *Staphylococcus aureus*
 - D) *Staphylococcus saprophyticus*
- _____ 18) *Chlamydia trachomatis* causes a variety of infectious diseases. One of them is a trachoma. What body part is a trachoma infecting?
- A) the skin
 - B) the trachea and lungs
 - C) the eyelids
 - D) the penis or vagina
- _____ 19) Which bacteria produces a green fluorescent pigment called fluorescein and a blue pigment called pyocyanin and is a possible cause of infections in burn wounds?
- A) *Streptococcus pyogenes*
 - B) *Pseudomonas aeruginosa*
 - C) *Streptococcus pneumoniae*
 - D) *Treponema pallidum*
- _____ 20) The Saddle-nose deformity due to a long-term bacterial and usually untreated sexually transmitted infection destroying the bone and cartilage of the nasal septum is seen in what disease?
- A) Gonorrhoeae
 - B) Syphilis
 - C) Chlamydia
 - D) Rickettsia

Chapter 20: Fungal Infections & Chapter 21: Parasitic (Protozoal) Infections

- ____ 1) Which of the following fungal lung infections could easily lead to many thousands of infections if people are exposed to a dust storm, especially in the southwestern United States?
- A) Coccidioidomycosis (Valley Fever)
 - B) Aspergillosis
 - C) Blastomycosis
 - D) Pneumocystis Pneumonia (PCP)
 - E) Tinea Versicolor
- ____ 2) Which rare fungal lung infection can cause a large fungus ball to develop in the lung, and will usually only occur in those who have poor immune systems?
- A) Coccidioidomycosis (Valley Fever)
 - B) Aspergillosis
 - C) Blastomycosis
 - D) Pneumocystis Pneumonia (PCP)
 - E) Tinea Versicolor
- ____ 3) Which of the following fungal infections is endemic in the southeast and midwest portions of the United States and tends to cause the most problems with people who have poor immune systems and also happen to work in the outdoors, such as a farmer or forestry worker, but can also occur in those who go hunting or camping where the fungus is in the soil?
- A) Coccidioidomycosis (Valley Fever)
 - B) Aspergillosis
 - C) Blastomycosis
 - D) Pneumocystis Pneumonia (PCP)
 - E) Tinea Versicolor
- ____ 4) Which fungal infection has yeast cells which appear as broad-based buds when it reproduces?
- A) Coccidioidomycosis (Valley Fever)
 - B) Aspergillosis
 - C) Blastomycosis
 - D) Pneumocystis Pneumonia (PCP)
 - E) Tinea Versicolor
- ____ 5) Which fungal infection is difficult to research as cultures of it don't grow well outside of humans (ex-vivo) and a surge of new cases occurred with the appearance of the HIV/AIDS epidemic in the 1980s?
- A) Coccidioidomycosis (Valley Fever)
 - B) Aspergillosis
 - C) Blastomycosis
 - D) Pneumocystis Pneumonia (PCP)
 - E) Tinea Versicolor
- ____ 6) Seborrheic dermatitis, dandruff, and hyperhidrosis (extreme sweating) make it more likely for what fungal infection to occur?
- A) Coccidioidomycosis (Valley Fever)
 - B) Aspergillosis
 - C) Blastomycosis
 - D) Pneumocystis Pneumonia (PCP)
 - E) Tinea Versicolor
- ____ 7) Which fungal skin infection will fluoresce an orange-copper color when under the UV light of a Wood's Lamp?
- A) Coccidioidomycosis (Valley Fever)
 - B) Aspergillosis
 - C) Blastomycosis
 - D) Pneumocystis Pneumonia (PCP)
 - E) Tinea Versicolor
- ____ 8) Which infection can lead to worm eggs in the feces, has a worldwide prevalence of nearly 1 billion people and in the worse cases, can lead to a prolapsed rectum with what is known as "coconut cake mucosa"?
- A) American Trypanosomiasis
 - B) Hookworm
 - C) Phthiriasis
 - D) Pinworm
 - E) Whipworm

- ____ 9) Which infection is the Scotch Tape test used to diagnose?
A) American Trypanosomiasis
B) Hookworm
C) Phthiriasis
D) Pinworm
E) Whipworm
- ____ 10) Which infection is caused by *Enterobius vermicularis*?
A) American Trypanosomiasis
B) Hookworm
C) Phthiriasis
D) Pinworm
E) Whipworm
- ____ 11) Which infection is considered a sexually transmitted disease that can lay its eggs (nits) on hair?
A) American Trypanosomiasis
B) Hookworm
C) Phthiriasis
D) Pinworm
E) Whipworm
- ____ 12) Which infection mostly causes sores on the skin where it occurs and is caused by a species of louse?
A) American Trypanosomiasis
B) Hookworm
C) Phthiriasis
D) Pinworm
E) Whipworm
- ____ 13) Which infection can lead to worm eggs in the feces, has a worldwide prevalence of 576 to 740 million, and can be caught by walking barefoot in contaminated soil? Luckily, if you get the infection, there will rarely be symptoms, but if they occur, the most serious one is anemia.
A) American Trypanosomiasis
B) Hookworm
C) Phthiriasis
D) Pinworm
E) Whipworm
- ____ 14) Which infection is caused by *Necator americanus* and *Ancylostoma duodenale*?
A) American Trypanosomiasis
B) Hookworm
C) Phthiriasis
D) Pinworm
E) Whipworm
- ____ 15) Romaña's sign, a dilated heart, dilated esophagus, and a dilated colon are all the result of what infection?
A) American Trypanosomiasis
B) Hookworm
C) Phthiriasis
D) Pinworm
E) Whipworm
- ____ 16) Which disease is spread by a Triatomine Bug (Kissing Bug)?
A) American Trypanosomiasis
B) Hookworm
C) Phthiriasis
D) Pinworm
E) Whipworm