

Practice Questions for Lecture 1, 2, and 3. (Chapters 1, 2 and 3 in book)

- _____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 growth process is best represented by a skeletal muscle cell getting larger by lifting weights?
- A) Hypertrophy
 - B) Hyperplasia
 - C) Atrophy
 - D) Apoptosis
- _____3) Which growth process is best represented by a skeletal muscle cell shrinking with non-use while in a cast?
- A) Hypertrophy
 - B) Hyperplasia
 - C) Atrophy
 - D) Apoptosis
- _____4) Which of the following is also known as an acellular microbe?
- A) Bacteria
 - B) Archaea
 - C) Viruses
 - D) Eukaryotes
- _____5) 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%
- _____6) Which of the following is a member of the Eukaryotes?
- A) Prokaryotes
 - B) Archaea
 - C) Viruses
 - D) Protozoa
- _____7) 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
- _____8) The oldest known microbes are found in what kind of material?
- A) Glass
 - B) Quartz
 - C) Stromatolites
 - D) moon rocks
- _____9) Which location has the oldest known written records documenting microbe diseases such as tuberculosis, & Guinea worm?
- A) Saudia Arabia
 - B) Egypt
 - C) England
 - D) Germany
- _____10) Who had his works preserved for future generations by Arabian scholars?
- A) Aristotle
 - B) Imhotep
 - C) Leeuwenhoek
 - D) Hooke

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- ____ 11) 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
- ____ 12) 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
- ____ 13) 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
- ____ 14) 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
- ____ 15) 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
- ____ 16) 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
- ____ 17) 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
- ____ 18) 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
- ____ 19) 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
- ____ 20) 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

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- ____21) Who was the first to scientifically demonstrate that bacteria can cause disease?
A) Robert Koch
B) Louis Pasteur
C) Francesco Redi
D) Lazzaro Spallanzani
- ____22) Which of the following is most likely the smallest?
A) human red blood cell
B) *E. coli* bacteria
C) Smallpox virus
D) ribosomes
- ____23) 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
- ____24) Which color of visible light has the smallest wavelength?
A) Red
B) Violet
C) Yellow
D) Green
- ____25) What has wavelengths smaller than X-rays?
A) Microwaves
B) Gamma rays
C) Ultraviolet Light
D) Infrared rays
- ____26) The difference in intensity between two objects or between an object and its background is _____.
A) Contrast
B) Resolution
C) Parfocalism
D) Refraction
- ____27) 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
- ____28) 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
- ____29) What is the useful maximum magnification of a light microscope?
A) 40 X
B) 100 X
C) 400 X
D) 1000 X
- ____30) What objective lens is the longest?
A) 4 X
B) 10 X
C) 40 X
D) 100 X

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- ____31) Which objective lens requires oil to improve the resolution?
A) 4 X
B) 10 X
C) 40 X
D) 100 X
- ____32) 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
- ____33) Electron microscopes use _____ to magnify the image.
A) glass lenses
B) vacuum
C) electromagnets
D) electrons
- ____34) 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
- ____35) 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
- ____36) 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
- ____37) 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
- ____38) 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
- ____39) Which term means movement toward a chemical at a higher concentration?
A) Positive Chemotaxis
B) Negative Chemotaxis
C) Positive Phototaxis
D) Negative Phototaxis
- ____40) Which flagella arrangement is a “tuft” of flagella at one end only?
A) Peritrichous
B) Monotrichous
C) Lophotrichous
D) Amphitrichous

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- ____41) 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
- ____42) 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
- ____43) Peptidoglycan is the primary component of what cell structure?
A) Cell Membrane
B) Nuclear Membrane
C) Cell Wall
D) Vacuoles
- ____44) Gram-Positive cells have which of the following?
A) lipopolysaccharides
B) lipoteichoic acids
C) outer plasma membrane
D) thin layer of peptidoglycan
- ____45) 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
- ____46) Mycoplasma 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
- ____47) Which cellular structure is highly resistant to heat, drying, radiation, and chemical exposure?
A) cell wall
B) cell membrane
C) endospore
D) ribosome
- ____48) 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
- ____49) What does a hamus look like?
A) clumps of hair
B) a fish hook
C) round balls
D) a snake
- ____50) 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