

Name _____

- 1) What was the purpose of the Human Genome Project.
- 2) How is it possible for *E. coli* to make human insulin.
- 3) PCR can be used to amplify DNA in a clinical sample. What are the steps?
- 4) Subunit vaccines can be made by genetic modification of yeast cells. What are the side effects of these vaccines?
- 5) Into which group would you place a photosynthetic organism that lacks a nucleus and has a thin peptidoglycan wall surrounded by an outer membrane?
- 6) In the scientific name *Enterobacter aerogenes*, *Enterobacter* is the genus or species?
- 7) How are bacteria and archaea are similar?
- 8) Protista is a diverse group of organisms, how are they similar?
- 9) The phylogenetic classification of bacteria is based on _____.
- 10) *Staphylococcus* and *Streptococcus* can be easily differentiated in a laboratory, how?
- 11) You have isolated a prokaryotic cell. The first step in identification is a(n) _____.
- 12) You have isolated a bacterium that grows in a medium containing only inorganic nutrients. Ammonia is oxidized to nitrate ion. What kind of bacterium is this?
- 13) *Borrelia* is classified as a spirochete because _____.
- 14) An organism that can grow photoautotrophically in the light and chemoheterotrophically in the dark is _____.
- 15) You see acid-fast oocysts in a fecal sample from a patient who has diarrhea. What is the most likely cause?
- 16) A definitive host harbors which stage of a parasite?
- 17) What is a persistent infection?
- 18) An example of a latent viral infection is _____?
- 19) In what ways do viruses differ from bacteria?
- 20) Nontoxic strains of *Vibrio cholerae* can become toxic when they are in the human intestine with toxic strains of bacteria. This suggests that the toxin genes are acquired by _____.
- 21) A clear area against a confluent "lawn" of bacteria is called a _____.
- 22) One effect of washing regularly with antibacterial agents is the removal of normal microbiota. This can result in _____.
- 23) Plague transmitted by a flea is an example of _____.
- 24) Symptoms of disease differ from signs of disease in that symptoms _____.
- 25) Koch's postulates don't apply to all diseases, why?
- 26) What is a nosocomial?
- 27) Cytopathic effects are changes in host cells due to _____.
- 28) Cholera toxin polypeptide A binds to surface gangliosides on target cells. What would happen if the gangliosides were removed?
- 29) What is ID₅₀?
- 30) The mechanism by which gram-negative bacteria can cross the blood-brain barrier?
- 31) Which organism most easily causes an infection?
- 32) What are Siderophores, what do they do?

- 33) Septic shock due to gram-positive bacteria is caused by _____.
- 34) The patient has vesicles and scabs over her forehead. Microscopic examination of skin scrapings shows gram-positive cocci in clusters. The etiology is _____.
- 35) A 35-year-old woman has a red, raised rash on the inside of her thighs. Gram-stained skin scrapings show large budding cells with pseudohyphae. The infection is caused by _____
- 36) The etiologic agent of roseola is _____.
- 37) A 45-year-old man has pus-filled vesicles distributed over his back in the upper right quadrant, over his right shoulder, and upper right quadrant of his chest. His symptoms are most likely due to _____.

Possible essay questions

- Explain how the presence of algae can indicate either pollution or productivity of a body of water.
- Bacteriophages are used as vectors in genetic engineering to insert new genes into bacteria. Describe the process that makes this genetic recombination possible.
- Some scientists are concerned that genetic engineering allows humans to tamper with evolution. Argue either for or against this position.