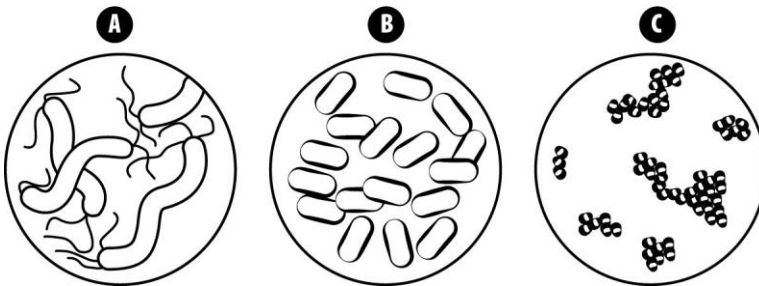


G10 Science Homework (Chapter 12)

Multiple Choice

Identify the choice that best completes the statement or answers the question.

- _____ 1. Which of the following is *not* a characteristic of archaea?
- A. Many live in extreme environments such as volcanoes and acidic springs.
 - B. Peptidoglycan is absent from their cell walls.
 - C. They include species that produce methane.
 - D. They are eukaryotic.



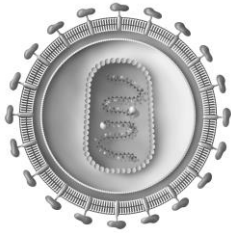
Only one choice is correct.

- _____ 2. Refer to the three images above. A doctor treated several patients who were sick from food poisoning. They had all eaten lunch at the Greasy Spoon restaurant. A state health inspector was immediately sent to inspect the restaurant and found *Staphylococcus aureus* in a sample of chicken salad. Which image did the inspector see under his microscope? Only one choice is correct.
- A. image A
 - B. image B
 - C. image C
- _____ 3. Refer to the three images above. None of the ill patients from the previous question had eaten the chicken salad. However, the health inspector found *Bacillus cereus* in the potato salad of the restaurant. All the people who had food poisoning had eaten the potato salad. Which image did the food inspector see under his microscope? Only one choice is correct.
- A. image A
 - B. image B
 - C. image C
- _____ 4. Refer to the three images above. *Rhodospirillum rubrum* was one of the three bacterial species that a student prepared to view under his microscope. Which image did he see when viewing this bacteria? Only one choice is correct.
- A. image A
 - B. image B
 - C. image C
- _____ 5. Gram staining
- A. is used to classify bacteria.

- B. detects amounts of peptidoglycan in the cell walls of bacteria.
- C. can predict whether a particular antibiotic will be effective for treating a certain bacteria.
- D. includes all of these.

- _____ 6. Antibiotics control bacteria by _____.
- A. directly killing them
 - B. slowing their growth
 - C. both *A* and *B*
 - D. neither *A* nor *B*
- _____ 7. Which bacterial structure protects a bacterium from drying out?
- A. nucleoid
 - B. capsule
 - C. flagellum
 - D. none of these
- _____ 8. Which bacterial structure contains a bacterium's genetic material?
- A. nucleoid
 - B. capsule
 - C. flagellum
 - D. cell membrane
- _____ 9. A bacterium can transfer a plasmid to another bacterium during
- A. binary fission.
 - B. conjugation.
 - C. transduction.
 - D. transformation.
- _____ 10. Autotrophic bacteria that photosynthesize belong to the group known as
- A. cyanobacteria.
 - B. opportunistic pathogens.
 - C. decomposers.
 - D. microbiota.
- _____ 11. Which cellular structures do viruses lack?
- A. mitochondria
 - B. ribosomes
 - C. both *A* and *B*
 - D. neither *A* nor *B*
- _____ 12. Which of the following is *not* a virus?

A.



B.



C.



D. All of these are viruses.

- ___ 13. An infectious particle made of abnormal proteins is called a
- A. virus.
 - B. retrovirus.
 - C. viroid.
 - D. prion.
- ___ 14. Which of the following correctly orders the events in the lytic cycle?
- A. attachment of virus to host cell, replication of virus, lysis, injection of genetic material
 - B. injection of genetic material, replication of virus, attachment of virus to host cell, lysis
 - C. attachment of virus to host cell, injection of genetic material, replication of virus, lysis
 - D. attachment of virus to host cell, injection of genetic material, lysis, replication of virus
- ___ 15. Which of the following is *not* a viral disease?
- A. Ebola
 - B. Lyme disease
 - C. HIV/AIDS
 - D. polio

True/False

Indicate whether the statement is true or false.

- ___ 16. Though prokaryotic, archaea share many characteristics with eukaryotes.
- ___ 17. You discover a unicellular organism in a pool in an abandoned salt mine. The organism has cell walls, but the walls do not contain peptidoglycan. The new organism is likely a species of bacteria.

- ___ 18. Gram staining is used to determine whether a bacteria causes disease.
- ___ 19. A bacterium's capsule serves mainly as a means of movement.
- ___ 20. A bacterium's DNA is located in its nucleoid.
- ___ 21. The most common form of bacterial reproduction is binary fission.
- ___ 22. In transduction, genetic material is transferred from one bacterium to another by a virus.
- ___ 23. During conjugation, two bacteria exchange plasmids with each other through a pilus.
- ___ 24. Bacteria in the human gut serve a variety of functions, including the synthesis of certain vitamins.
- ___ 25. All bacteria are heterotrophic.
- ___ 26. Bacteria serve a major role as decomposers.
- ___ 27. Some bacteria are opportunistic pathogens, causing disease only under certain conditions, but are otherwise a normal part of an organism's microbiota.
- ___ 28. Pneumonia and food poisoning are both caused by bacteria that are a normal part of the human microbiota.
- ___ 29. Viroids and prions are infectious particles smaller and simpler than viruses.
- ___ 30. Mad cow disease is one disease caused by a virus.
- ___ 31. The most common form of reproduction for viruses is binary fission.
- ___ 32. The lytic cycle of viral reproduction causes rapid infection and destruction of host cells.
- ___ 33. A virus may reproduce through either the lytic cycle or the lysogenic cycle, but not both.
- ___ 34. Cold sores are an example of a disease caused by a bacteria.
- ___ 35. A virus in its lysogenic phase may lie dormant for years before reentering the lytic cycle.
- ___ 36. HIV/AIDS is a retrovirus that can force its host cell to transcribe the viral RNA into the host cell's DNA.
- ___ 37. Viruses are sometimes used as pest control agents.
- ___ 38. Interferon works by directly attaching to and destroying viral particles.
- ___ 39. Emerging infectious diseases (such as Ebola) often appear suddenly, kill large numbers of victims, then disappear again only to reappear years later.

Matching

Identify whether each of the following is true about viruses (V) or bacteria (B). Match the letter corresponding to the answer with the appropriate clue by writing the letter in the blank. Answers may be used more than once.

- ___ 40. reproduces by binary fission
- ___ 41. usually occurs in one of three basic shapes: coccus, spirillum, bacillus
- ___ 42. not considered a cellular organism
- ___ 43. many can move using a flagellum
- ___ 44. must invade a host cell in order to reproduce
- ___ 45. causes strep throat, food poisoning, and pneumonia
- ___ 46. used in gene therapy
- ___ 47. causes herpes, chicken pox, and HIV
- ___ 48. basic structure consists of a strand of RNA or DNA, a capsid, and an envelope
- ___ 49. make up the microbiota in the digestive systems of animals and humans

Match the letter of the corresponding archaea with the appropriate clue by writing the letter in the blank. Answers may be used more than once.

- A. thermophiles
- B. halophiles
- C. methanogens
- D. acidophiles

- ___ 50. thrive in hot, acidic springs, such as those in Yellowstone National Park
- ___ 51. found in water saltier than the ocean, such as the Dead Sea
- ___ 52. found near deep sea vents where water temperatures are at or near water's boiling point
- ___ 53. found in anaerobic environments, such as swamps
- ___ 54. first archaeans discovered
- ___ 55. largest group of archaeans

Match the letter of the answer with the appropriate clue by writing the letter in the blank. Answers may be used more than once.

- A. binary fission
- B. transformation
- C. transduction
- D. conjugation

- ___ 56. occurs when a bacterium takes in a piece of DNA from its environment
- ___ 57. when genetic information is transmitted from one bacterium to another by a bacteriophage
- ___ 58. the most common form of reproduction in bacteria
- ___ 59. when a plasmid is transferred from one bacterium to another through a pilus
- ___ 60. produces two identical bacterial cells from one bacterial cell