Test I - Viruses, Bacteria, Protists, and Fungi

Matching
For questions 1-12, write the letter of the word from the word bank that best fits each description. Only one answer is correct for each question. You may use the words in the word bank more than once. (2 points each)

a. Bacterium
b. Fungus
c. Protist
d. Virus

1. Is not a cell
2. Is a cell but does not have a nucleus
3. Is usually a unicellular eukaryote
4. Is always unicellular
5. Is a multicellular decomposer
6. Includes algae
7. Sometimes contains chloroplasts
8. Is composed of nucleic acid surrounded by a protein coat
9. Includes bacteriophages
10. Includes E. coli
11. Includes yeast
12. Has a cell wall made of chitin

Multiple Choice
For questions 13-45, write the letter of the one phrase or word that best answers each question or completes each statement. (2 points each)

13. Viruses are not alive because they ________________.
   a. are pathogens
   b. are very small
   c. contain protein
   d. do not reproduce independently

14. A similarity between viruses and bacteria is that they both ____________.
   a. are killed with antibiotics
   b. can be seen with a light microscope
   c. contain nucleic acids
   d. have a cell membrane

15. viruses : cells ::
   a. bacteria : viruses
   b. eukaryotes : nuclei
   c. parasites : hosts
   d. plants : sun

16. What do all viruses need to reproduce?
   a. eukaryotes
   b. host cells
   c. other viruses
   d. reverse transcriptase
17. Refer to the diagram above, which shows the lytic and lysogenic cycles of a virus. Which part of these cycles would be most difficult to attack with antiviral drugs?
   a. Part 1: attachment of the virus to the host cell
   b. Part 2: replication of the viral RNA or DNA inside the host cell
   c. Part 3: assembly of new viruses within the host cell
   d. Part 5: replication of host cells with viral RNA “hidden” in the host cell genome

18. Refer to the diagram above. Which is not shown?
   a. a bacteriophage
   b. a bacterium
   c. a eukaryote
   d. a virus

19. The flu can be treated or prevented by all of the following except _____________.
   a. antibiotics
   b. antiviral drugs
   c. avoiding contact with people who already have the flu
   d. a vaccine

20. Viruses can not infect _________________.
   a. animals
   b. other viruses
   c. bacteria
   d. plants

21. A pathogen is always _____________.
   a. a bacterium
   b. a protist
   c. a disease-causing agent
   d. a virus
22. Both bacteria and fungi can be ________________.
   a. autotrophic
   b. decomposers
   c. eukaryotes
   d. multicellular

23. Bacteria adapt more quickly than elephants to environmental changes. Which best explains the difference?
   a. Bacteria reproduce more quickly, speeding up the process of natural selection.
   b. Bacteria move more quickly, allowing them to migrate easier.
   c. Elephants have more genes, so they mutate slower.
   d. Elephants are not affected by antibiotics.

24. Structures found in eukaryotic cells and bacterial cells include ________________.
   a. chloroplasts
   b. mitochondria
   c. nuclei
   d. ribosomes

25. Refer to the illustration above. Which of the diagrams has a shape like the Coccus bacterial group?
   a. Organism A
   b. Organism B
   c. Organism C
   d. Both A and B

26. A student observes that a type of eubacteria contains chlorophyll. Which of these does this type of bacteria have in common with plants?
   a. It contains chloroplasts.
   b. It is heterotrophic.
   c. It is photosynthetic.
   d. It is unicellular.
27. Refer to the diagram above. These three samples from the same live culture were all viewed at the same magnification. Which conclusion is best supported by the observation of these three samples?
   a. The bacterial culture was unaffected by the chemical agent.
   b. The culture became contaminated by airborne bacteria during the initial sampling.
   c. The culture included some bacteria that were resistant to the chemical agent.
   d. The sampling techniques used did not produce accurate data.

28. Students research unicellular, prokaryotic organisms that live in harsh environments such as volcanic hot springs, brine pools, and anaerobic black organic mud. Which of group are the students most likely researching?
   a. Archaebacteria
   b. Eubacteria
   c. Plantae
   d. Protista
29. Use the diagram above. Which of these is the best example of a bacterium
   a. F
   b. G
   c. H
   d. J

30. All of the following are protists except ____________
   a. basidiomycota
   b. chlorophyta
   c. ciliophora
   d. dinoflagellata

31. Ciliophores : cilia ::
   a. Algae : chlorophyll
   b. Sporozoa : parasite
   c. Ciliophores : flagella
   d. Zoomastigina : flagella

32. Protist : malaria ::
   a. bacterium : antibiotic
   b. bacterium : flu
   c. fungus : lichen
   d. virus : AIDS

33. Unlike fungi, protists can be ____________
   a. autotrophic
   b. heterotrophic
   c. multicellular
   d. unicellular

34. Refer to the illustration above. Each of these protists have structures for movement and rapid response to environmental changes. These abilities most likely help these organisms ____________
   a. avoid viral infections
   b. capture prey for energy
   c. express their genes
   d. perform photosynthesis

35. Protists cannot be ________________
   a. decomposers
   b. parasites
   c. photosynthetic
   d. red
36. Refer to the illustration above. The structure that contains the cell’s DNA is labeled
   a. A
   b. C
   c. D
   d. E

37. Refer to the illustration above. This organism is most likely a protist because it ________________.
   a. contains a nucleus, a vacuole, and mitochondria
   b. has cilia for movement
   c. is heterotrophic and eats other organisms for energy
   d. is mobile, unicellular, and has a nucleus

38. Fungi obtain energy ________________.
   a. by eating other organisms
   b. by breaking down and absorbing organic molecules
   c. directly from the sun
   d. from inorganic material in their environment

39. Decomposers include all the following except ________________.
   a. basidiomycota
   b. eubacteria
   c. worms
   d. zygomycota

40. Fungi are extremely important in many ecosystems primarily because they ____________.
   a. are always parasitic
   b. produce oxygen from photosynthesis
   c. provide food for other organisms
   d. recycle nutrients like nitrogen

41. The individual filaments that make up the main body of a fungus are called ________________.
   a. cytoskeleton
   b. hyphae
   c. mushrooms
   d. mycelium

42. Unlike plants, fungi do not have ________________.
   a. chloroplasts
   b. cell membrane
   c. cell walls
   d. nuclei
43. Refer to the illustration above. Which features characterize the kingdom of which this organism is a member?
   a. eukaryotic, absorbs nutrients
   b. aquatic, multicellular
   c. eukaryotic, autotrophic
   d. prokaryotic, decomposes organic material

44. fungus : lichen ::
   a. plant : mycorrhiza
   b. mycelium : hypha
   c. walls : hypha
   d. mycelium : fungus

45. Most parasites do not kill their hosts because, in order to live, they require their hosts to continue living too. However, parasitic fungi can kill their hosts and continue to thrive. What is the likely reason for this?
   a. Fungi can always easily find a new host.
   b. Fungi can continue to absorb energy by decomposing the dead organic material.
   c. Fungi can make their own energy until a new host is available.
   d. Fungi can stop using energy until a new host is available.

Short Answer

46. Lynn Margulis developed the theory of endosymbiosis. Explain this theory and include 1) the type of symbiotic relationship involved (commensalism, mutualism, parasitism, etc.), 2) how it explains the relationship between prokaryotes with eukaryotes, and 3) how it explains the origins of mitochondria and chloroplasts. Use complete sentences (4 points)
47. What piece of information is needed to separate kingdom 1 from kingdom 2?

48. If a scientist knew an organism was eukaryotic, multicellular, and heterotrophic, which three kingdoms might it belong to (give the numbers, even if you know the actual kingdom names)?

49. Why do scientists need more information than just “body type” to classify organisms in the six kingdoms?