Exam

Name_____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) Microorganisms are involved in each of the following processes EXCEPT 1) _____
A) infection.
B) food production.
C) smog production.
D) decomposition of organic material.
E) O_2 production.

Answer: C

2) Each of the following organisms would be considered a microbe EXCEPT 2) _____
A) mushroom.
B) protozoan.
C) virus.
D) yeast.
E) bacterium.

Answer: A

3) The term used to describe a disease-causing microorganism is 3) _____
A) virus.
B) infection.
C) bacterium.
D) microbe.
E) pathogen.

Answer: E

4) Common commercial benefits of microorganisms include synthesis of 4) _____
A) aspirin.
B) antibiotics.
C) insulin.
D) antibiotics and aspirin.
E) antibiotics and insulin.

Answer: E

5) Commercial utilization of microbial products has become increasingly popular due to their environmentally friendly nature. Removal of these products from the environment typically utilizes 5) _____
A) enzymes.
B) organic acids.
C) soap.
D) alcohol.
E) organic solvents.

Answer: A

6) The formal system for classifying and naming organisms was developed by 6) _____
A) Aristotle.
B) Louis Pasteur.
C) Ignaz Semmelweis.
D) Carolus Linnaeus.
E) Robert Koch.

Answer: D

7) In the name *Staphylococcus aureus*, *aureus* is the 7) _____
A) domain name.
B) genus.
C) specific name.
D) kingdom.
E) family name.

Answer: C

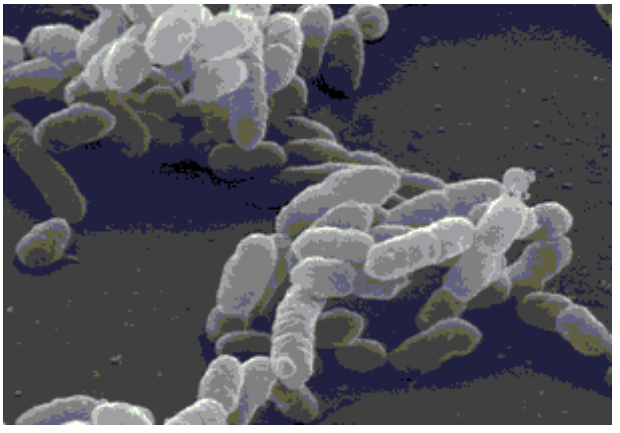
8) A prokaryotic cell may possess each of the following cellular components EXCEPT 8) _____
A) a nucleus.
B) flagella.
C) a cell membrane.
D) a cell wall.
E) ribosomes.

Answer: A

9) Which of the following is NOT associated with viruses? 9) _____
A) organelles
B) envelope
C) nucleic acid
D) capsid
E) spikes

Answer: A

Figure 1.1



10) The bacterial shape of the cells in Figure 1.1 would best be described as 10) _____
A) bacillus. B) ovoid. C) spiral. D) columnar. E) coccus.

Answer: A

11) Protozoan motility structures include 11) _____
A) pseudopods.
B) cilia.
C) flagella.
D) cilia and pseudopods only.
E) cilia, flagella, and pseudopods.

Answer: E

12) Viruses are not considered living organisms because they 12) _____
A) are ubiquitous in nature.
B) cannot reproduce by themselves.
C) can only be visualized using an electron microscope.
D) typically associated with disease.
E) are structurally very simple.

Answer: B

13) The infectious agent that causes AIDS is a 13) _____
A) bacterium.
B) virus.
C) yeast.
D) protozoan.
E) mold.

Answer: B

14) Which of the following is NOT a domain in the three-domain system? 14) _____
A) eukarya B) archaea C) bacteria D) animalia

Answer: D

15) Classification of organisms into three domains is based on 15) _____
A) cellular proteins.
B) the presence of a cell wall.
C) nutritional requirements.
D) cellular organization.
E) the number of cells in the organism.

Answer: D

16) Archaea differ from bacteria in that archaea 16) _____
A) use organic compounds for food.
B) lack nuclei.
C) have diverse cell wall compositions.
D) are prokaryotic.
E) reproduce by binary fission.

Answer: C

17) Who is credited with first observing cells? 17) _____
A) Louis Pasteur
B) Robert Hooke
C) Anton van Leeuwenhoek
D) Robert Koch
E) Carolus Linnaeus

Answer: B

18) Who is credited with first observing microorganisms? 18) _____
A) Louis Pasteur
B) Anton van Leeuwenhoek
C) Robert Hooke
D) Robert Koch
E) Carolus Linnaeus

Answer: B

19) Biogenesis refers to the 19) _____
A) germ theory of disease.
B) spontaneous generation of organisms from nonliving matter.
C) development of aseptic technique.
D) development of life forms from preexisting life forms.

Answer: D

20) If you were setting up an experiment to disprove spontaneous generation in a liquid medium, which of the following would be essential to the experiment? 20) _____
A) using a sterile liquid and eliminating exposure to microorganisms
B) starting with a liquid that contains microorganisms
C) adding carbon dioxide to the liquid
D) adding antibiotics to the liquid
E) supplying the liquid with nutrients

Answer: A

21) The arguments supporting spontaneous generation were finally disproved by 21) _____
A) Rudolf Virchow.
B) Lazzaro Spallanzani.
C) Francesco Redi.
D) John Needham.
E) Louis Pasteur.

Answer: E

22) Regarding Louis Pasteur's experiments with the S-neck flask, which of the following statements is TRUE? 22) _____
A) All preexisting microorganisms were killed.
B) Air exchange was involved.
C) A food source was provided.
D) The possibility of contamination was removed.
E) All of the answers are correct.

Answer: E

23) The microbial process of converting sugars to alcohol is known as 23) _____
A) fermentation.
B) lyophilization.
C) pasteurization.
D) tyndallization.
E) alcoholism.

Answer: A

24) Proof that a microbe could cause disease was provided by 24) _____
A) Semmelweis.
B) Lister.
C) Pasteur.
D) Wasserman.
E) Koch.

Answer: E

25) The use of phenol (carbolic acid) as a wound disinfectant was first practiced by 25) _____
A) Semmelweis.
B) Koch.
C) Pasteur.
D) Holmes.
E) Lister.

Answer: E

26) Mycology is the study of 26) _____
A) protozoa.
B) mycoplasma.
C) molds.
D) mushrooms.
E) molds, yeast, and mushrooms.

Answer: E

27) The first step for directly linking a microbe to a specific disease according to Koch's postulates is to 27) _____
A) culture the blood or other body fluid from a diseased animal using nutrient medium.
B) isolate microbes from the blood of healthy animals.
C) obtain a sample of blood or other body fluid from a diseased animal.
D) compare the blood of a sick animal to blood obtained from a healthy animal.
E) inject a sample of blood or other body fluid from a diseased animal into a healthy animal.

Answer: C

28) In which of the following situations would Koch's postulates be utilized? 28) _____
A) determination of the cause of a patient's illness in a hospital microbiology lab
B) whenever the scientific method is used to investigate a microbiological problem
C) development of a new antibiotic in a pharmaceutical lab
D) determination of the cause of cancer in a patient
E) formulation of a vaccine against a new pathogen in a genetic engineering lab

Answer: A

29) Robert Koch identified the cause of 29) _____
A) diphtheria.
B) tuberculosis.
C) AIDS.
D) anthrax.
E) smallpox.

Answer: D

30) _____ is the physician first associated with vaccination. 30) _____
A) Koch B) Jenner C) Pasteur D) Escherich E) Lister

Answer: B

31) Which of the following findings was essential for Edward Jenner's vaccination process? 31) _____
A) A weakened microorganism will not cause disease.
B) Disease is caused by viruses.
C) Someone who recovers from a disease will not acquire that disease again.
D) Exposure to a milder disease form may produce immunity.
E) Pathogenic microorganisms infect all humans and animals in the same manner.

Answer: D

32) Antibiotics are produced by 32) _____
A) protozoa.
B) fungi.
C) bacteria.
D) viruses.
E) bacteria and fungi.

Answer: E

33) The first antibiotic to be utilized was 33) _____
A) sulfonamides.
B) salvarsan.
C) penicillin.
D) quinine.
E) vancomycin.

Answer: C

34) Who was the first scientist to pursue a "magic bullet" that could be used to treat infectious disease? 34) _____
A) Lister
B) Ehrlich
C) Pasteur
D) Jenner
E) Semmelweis

Answer: B

35) Fungal infections are studied by 35) _____
A) bacteriologists.
B) herpetologists.
C) mycologists.
D) virologists.
E) parasitologists.

Answer: C

36) Vaccinations are available for all of the following diseases EXCEPT 36) _____
A) hepatitis B.
B) measles.
C) rubella.
D) strep throat.
E) mumps.

Answer: D

37) Recombinant DNA refers to the 37) _____
A) synthesis of proteins from genes.
B) study of the function of genes.
C) DNA resulting when bacterial genes are inserted in an animal genome.
D) study of bacterial ribosomes.
E) interaction between human and bacterial cells.

Answer: C

38) Molecular biology is the study of 38) _____
A) RNA replication.
B) the structure and function of macromolecules essential to life.
C) protein synthesis.
D) enzyme function.
E) DNA synthesis.

Answer: B

39) Microorganisms are essential to our life. Each of the following is an example of a beneficial function of microorganisms EXCEPT 39) _____
A) bioremediation.
B) gene therapy.
C) alternative fuel production.
D) increased morbidity.
E) agriculture.

Answer: D

40) The major food producers for other living organisms is/are 40) _____
A) higher plants.
B) cyanobacteria.
C) algae.
D) higher plants and algae.
E) higher plants, cyanobacteria, and algae.

Answer: E

41) Gene therapy is currently used to treat all of the following diseases EXCEPT 41) _____
A) Duchenne's muscular dystrophy.
B) colon cancer.
C) cystic fibrosis.
D) severe combined immunodeficiency disease (SCID).
E) LDL-receptor deficiency.

Answer: B

42) Recombinant DNA technology has become an increasingly important part of our life. It is used for all of the following EXCEPT 42) _____
A) vaccine production.
B) enhancing food longevity.
C) increasing the nutritional value of food.
D) drug production.
E) synthesis of water.

Answer: E

43) Normal microbiota are typically found in and on all the following body locations EXCEPT the 43) _____
A) colon.
B) blood.
C) mouth.
D) upper respiratory system.
E) skin.

Answer: B

44) Which of the following statements about biofilms is FALSE? 44) _____
A) Biofilms on rocks provide food for animal life.
B) Biofilms in pipes can block the flow of water.
C) Compared to free-living bacteria, biofilms are more sensitive to antibiotics.
D) Biofilms in your body protect mucous membranes from harmful microbes.
E) Biofilms on medical devices cause infections.

Answer: C

45) Development of emerging infectious disease can be a result of all of the following EXCEPT 45) _____
A) modern transportation.
B) microbial mutation.
C) use of genetically modified foods.
D) overuse of antibiotics.
E) changes in the environment.

Answer: C

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

46) Infectious disease is almost totally eradicated in our world. 46) _____

Answer: True ✓ False

47) A student has obtained a sample of pond water for study. Using the high-power lens, he observes several cells with nuclei. He can conclude that the cells are NOT bacteria. 47) _____

Answer: ✓ True False

48) The process of pasteurization to reduce food spoilage utilizes high heat to kill all bacteria present. 48) _____

Answer: True ✓ False

49) Anton van Leeuwenhoek was the first microbiologist to use a microscope to examine environmental samples for the presence of microorganisms. 49) _____

Answer: ✓ True False

50) Spontaneous generation refers to living cells arising only from other living cells. 50) _____

Answer: True ✓ False

51) Microbes are associated with life-sustaining benefits as well as life-threatening diseases. 51) _____

Answer: ✓ True False

52) All cells possess a cell wall. 52) _____

Answer: True ✓ False

53) Some viruses can contain both DNA and RNA. 53) _____

Answer: True False

54) Bovine spongiform encephalitis (BSE, or "mad cow disease") is caused by a virus. 54) _____

Answer: True False

55) All pathogens known to infect humans have been identified at this point in time. 55) _____

Answer: True False

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

56) What is an emerging disease, and what are some of the sources for these "new" infectious diseases?

Answer:

57) Compare and contrast prokaryotic and eukaryotic cells.

Answer:

58) What was the function and importance of S-necked flasks in Louis Pasteur's experiments in disproving spontaneous generation?

Answer:

59) Explain the germ theory of disease and discuss why this theory is essential to the treatment of infectious disease.

Answer: