

Student name: \_\_\_\_\_

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

1) Members of the same species share many more characteristics compared to those shared by members of the same kingdom.

- ☐ true                      ☐ false

2) Viruses are *not* classified in any of Whittaker's five kingdoms.

- ☐ true                      ☐ false

3) Members of the kingdom Fungi are photosynthetic.

- ☐ true                      ☐ false

4) A scientist studying helminths is working with bacteria.

- ☐ true                      ☐ false

5) The fossil record has established that prokaryotes existed on Earth for approximately two billion years before eukaryotes evolved.

- ☐ true                      ☐ false

6) It has been over 25 years since a new infectious disease has emerged in the world.

- ☐ true                      ☐ false

7) *The term sterile means free of all life-forms.*

- ☐ true                      ☐ false

**8)** All microorganisms are parasites.

☐ true                      ☐ false

**9)** During a scientific experiment, the control group is used to directly test or measure the consequences of a variable in the study.

☐ true                      ☐ false

**10)** The scientific method involves formulating a tentative explanation, called the hypothesis, to account for what has been observed or measured.

☐ true                      ☐ false

**11)** Once an organism is assigned to a particular taxonomic hierarchy, it is permanent and cannot be revised.

☐ true                      ☐ false

**12)** When the results of an experiment support a hypothesis, the hypothesis can now be considered a theory.

☐ true                      ☐ false

**13)** The names of the three proposed domains are: Bacteria, Protista, Eukarya.

☐ true                      ☐ false

**14)** One distinguishing characteristic of archaeais that they live in extreme environments.

☐ true                      ☐ false

**15)** Some microorganisms can photosynthesize, but their overall contribution to Earth's atmospheric oxygen is very small in comparison to plant photosynthesis.

- ☐ true                      ☐ false

**16)** Any microorganism on or in the human body is considered a pathogen.

- ☐ true                      ☐ false

**17)** Theories are supported by more evidence than hypotheses.

- ☐ true                      ☐ false

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

**18)** Disease-causing microorganisms are called

- A) decomposers.
- B) prokaryotes.
- C) pathogens.
- D) eukaryotes.
- E) fermenters.

**19)** The microorganisms that recycle nutrients by breaking down dead matter and wastes are called

- A) decomposers.
- B) prokaryotes.
- C) pathogens.
- D) eukaryotes.
- E) fermenters.

**20)** The microorganisms that do *not* have a nucleus in their cells are called

- A) decomposers.
- B) prokaryotes.
- C) pathogens.
- D) eukaryotes.
- E) fermenters.

**21)** When humans manipulate the genes of microorganisms, the process is called

- A) bioremediation.
- B) genetic engineering.
- C) epidemiology.
- D) immunology.
- E) taxonomy.

**22)** Which of the following are *not* considered microorganisms?

- A) Mosquitoes
- B) Protozoa
- C) Bacteria
- D) Viruses
- E) Fungi

**23)** All microorganisms are best defined as organisms that

- A) cause human disease.
- B) lack a cell nucleus.
- C) are infectious particles.
- D) are too small to be seen with the unaided eye.
- E) can only be found growing in laboratories.

**24)** Which activity is an example of biotechnology?

- A) Bacteria in the soil secrete an antibiotic to kill competitors.
- B) A microbiologist uses a microscope to study bacteria.
- C) Humans use yeast to make beer and wine.
- D) *Mycobacterium tuberculosis* causes tuberculosis in the lungs.
- E) Public health officials monitor diseases in a community.

**25)** Which of the following is a unique characteristic of viruses that distinguishes them from the other major groups of microorganisms?

- A) Viruses cause human disease.
- B) Viruses are composed of cells that lack nuclei.
- C) Viruses cannot be seen without an electron microscope.
- D) Viruses contain genetic material.
- E) Viruses lack ribosomes.

**26)** Who was the Dutch merchant that made and used quality magnifying lenses to see and record microorganisms?

- A) Francesco Redi
- B) Antonie van Leeuwenhoek
- C) Louis Pasteur
- D) Joseph Lister
- E) Robert Koch

**27)** Pasteur used swan-neck flasks in his experiments to prove that

- A) air had "vital forces" capable of spontaneous generation.
- B) microbial fermentation could be used to make wine.
- C) dust in air was a source of living microorganisms.
- D) microorganisms could cause disease.
- E) microorganisms could be grown in laboratory infusions.

**28)** Which of the following is *not* a process in the scientific method?

- A) Belief in a preconceived idea
- B) Formulation of a hypothesis
- C) Systematic observation
- D) Laboratory experimentation
- E) Development of a theory

**29)** Spontaneous generation is the idea that

- A) germs cause infectious diseases.
- B) microbes are diverse and ubiquitous.
- C) microbes placed in an infusion can grow in it.
- D) aseptic techniques reduce microbes in medical settings.
- E) living things arise from nonliving matter.

**30)** Koch's postulates are criteria used to establish that

- A) microbes are found on dust particles.
- B) a specific microbe is the cause of a specific disease.
- C) life-forms can only arise from preexisting life-forms.
- D) a specific microbe should be classified in a specific kingdom.
- E) microbes can be used to clean up toxic spills.

**31)** Which of the following is a taxon that contains all the other taxa listed?

- A) Species
- B) Phylum
- C) Kingdom
- D) Genus
- E) Family

**32)** Which of the following is a scientific name?

- A) Bacteria
- B) Protista
- C) Species
- D) *Bacillus subtilis*
- E) Bacilli

**33)** Taxonomy does *not* involve

- A) nomenclature.
- B) classification.
- C) taxa.
- D) identification.
- E) Koch's postulates.

**34)** The smallest taxon is

- A) genus.
- B) species.
- C) kingdom.
- D) family.
- E) phylum.

- 35)** The study of evolutionary relationships among organisms is called
- A) biotechnology.
  - B) genetics.
  - C) recombinant DNA.
  - D) phylogeny.
  - E) taxonomy.
- 36)** A scientist studying similarities in the sequence of nucleotides in rRNA of two bacterial species is working on
- A) determining evolutionary relatedness.
  - B) bioremediation.
  - C) recombinant DNA.
  - D) nomenclature.
  - E) determining if that species is the cause of a new disease.
- 37)** A scientist discovers a new microbial species. It is a single-celled eukaryote without cell walls. In which kingdom will it likely be classified?
- A) Monera
  - B) Protista
  - C) Fungi
  - D) Animalia
  - E) Plantae
- 38)** A scientist collecting grass clippings to find the source of an outbreak of tularemia is an example of working in the field of



- A) food microbiology.
- B) epidemiology.
- C) agricultural microbiology.
- D) genetic engineering.
- E) biotechnology.

**39)** Helminths are

- A) bacteria.
- B) protozoa.
- C) molds.
- D) parasitic worms.
- E) infectious particles.

**40)** All of the following pertain to photosynthesis, *except*

- A) it occurs only in members of the kingdom Plantae .
- B) carbon dioxide is converted to organic material.
- C) it contributes to the oxygen content in the atmosphere.
- D) it is fueled by light.
- E) it is important to each ecosystem's flow of energy and food.

**41)** Organisms called parasites are

- A) always classified in the kingdom Monera.
- B) always harmful to their host.
- C) the decomposers in ecosystems.
- D) always viruses.
- E) free-living.

42) Who was the surgeon that advocated using disinfectants on hands and in the air prior to surgery?

- A) Joseph Lister
- B) Ignaz Semmelweis
- C) Robert Koch
- D) Louis Pasteur
- E) Antonie van Leeuwenhoek

43) Which scientist showed that anthrax was caused by the bacterium *Bacillus anthracis*?

- A) Joseph Lister
- B) Ignaz Semmelweis
- C) Robert Koch
- D) Louis Pasteur
- E) Antonie van Leeuwenhoek

44) Which of the following lists the correct descending taxonomic hierarchy (left to right)?

- A) Family, Order, Class
- B) Family, Genus, Species
- C) Genus, Species, Family
- D) Class, Phylum, Order
- E) Kingdom, Domain, Phylum

45) When assigning a scientific name to an organism,

- A) the species name is capitalized.
- B) the species name is placed first.
- C) the species name can be abbreviated.
- D) both genus and species names are capitalized.
- E) both genus and species names are italicized or underlined.

- 46) In Whittaker's system, the protozoa and algae are classified in the kingdom
- A) Monera.
  - B) Protista.
  - C) Mycetae.
  - D) Plantae.
  - E) Animalia.
- 47) The scientist(s) that proposed assigning organisms to one of three domains is/are
- A) Robert Koch and Louis Pasteur.
  - B) Antonie van Leeuwenhoek.
  - C) Carl Woese and George Fox.
  - D) Robert Whittaker.
  - E) Francesco Redi.
- 48) Which kingdom does *not* contain any eukaryotes?
- A) Monera
  - B) Protista
  - C) Mycetae
  - D) Plantae
  - E) Animalia
- 49) Which of the following are the main decomposers of the Earth?

- A) Bacteria and fungi
- B) Bacteria and viruses
- C) Algae and viruses
- D) Protists and fungi
- E) All organisms are decomposers.

**50)** The most common infectious cause of death worldwide is

- A) HIV/AIDS.
- B) stroke.
- C) heart disease.
- D) cancer.
- E) malaria.

**51)** Which of the following diseases is transmitted by mosquitoes?

- A) Diarrheal diseases
- B) Tuberculosis
- C) Malaria
- D) Septicemia
- E) Influenza

**52)** All of the following are correct about prokaryotes, *except*

- A) they are smaller than eukaryotes.
- B) they lack a nucleus.
- C) they are less complex than eukaryotes.
- D) they have organelles.
- E) they are found nearly everywhere.

**53)** All of the following contribute to the rise of emerging diseases, *except*

- A) the decrease in drug-resistant bacteria.
- B) human encroachment on wild habitats.
- C) changes in agricultural practices.
- D) human populations are more mobile.

54) Which scientist discovered heat-resistant bacterial spores?

- A) Joseph Lister
- B) Ignaz Semmelweis
- C) Robert Koch
- D) Ferdinand Cohn
- E) Antonie van Leeuwenhoek

55) Which of the following is the correct way to write the scientific name of this bacterium?

- A) Staph Aureus
- B) Staphylococcus Aureus
- C) *Staphylococcus aureus*
- D) Staphylococcus Aureus
- E) S. Aureus

56) Where are you most likely to find prokaryotes belonging to the domain Archaea?

- A) A human's large intestine
- B) A hot spring
- C) A pond
- D) A sewage treatment plant
- E) A beer production facility

**57)** When microbes are introduced into the environment to restore stability, the process is called

- A) bioremediation.
- B) genetic engineering.
- C) epidemiology.
- D) immunology.
- E) taxonomy.

**58)** In which of the following conditions is/are microbial infection often implicated as a cause?

- A) Gastric ulcers
- B) Female infertility
- C) Coronary artery disease
- D) Cervical cancer
- E) All of the choices are correct.

**59)** Cyanide is a chemical used to dissolve gold and is harmful to the environment and organisms living there. A couple of biochemists came up with the idea of using the bacteria in the genus *Pseudomonas* to break down the cyanide used by a gold mining company. Which term refers to this use of bacteria?

- A) Bioremediation
- B) Immunoextraction
- C) Decomposition
- D) Bioextraction
- E) Biosynthesis

**60)** Which of the following branches of Microbiology is utilized in diagnosing or treating someone who has broken out in hives and is experiencing respiratory distress due to an exposure to a microbial toxin?

- A) Agricultural Microbiology
- B) Epidemiology
- C) Biotechnology
- D) Immunology
- E) Industrial Microbiology

**61)** The nurse in an emergency department is reviewing discharge instructions with a client. The client asks for clarification of a zoonosis, in regards to the type of illness. What is the *best* response by the nurse?

- A) A zoonosis refers to any viral disease.
- B) A zoonosis is any disease which can be successfully treated with antibiotics.
- C) A zoonosis is a disease typically found in animals, but which infects humans.
- D) A zoonosis is a disease caused by a eukaryotic parasite.

**62)** A scientist that constructs a hypothesis and then tests its validity by outlining predicted events of the hypothesis followed by experimenting to test for those events is using the \_\_\_\_\_ approach.

- A) inductive
- B) deductive
- C) instructive
- D) trial-and-error

**63)** Recently Zika virus has been in the news, with many cases in Central and South America and increasing numbers of cases in the southern United States. Five years ago this virus was essentially unheard of in these areas. This is an example of

- A) an endemic virus.
- B) an emerging infectious disease.
- C) genetic recombination.
- D) a pandemic.

**64)** Numerous cases of microcephaly have been observed in the newborn babies of women who were infected with Zika virus during pregnancy. This led to the proposed hypothesis that Zika virus was causing the birth defects. This is an example of

- A) hypothesis testing.
- B) deductive reasoning.
- C) inductive reasoning.
- D) theory development.

**65)** You identify a new species of microorganism in an undersea thermal vent. The microbe is a single cell organism that lacks a nucleus. Which Domain would you classify your new species as belonging to?

- A) Domain Archaea
- B) Domain Bacteria
- C) Domain Eukarya
- D) None of the answers are correct.

**66)** A scientist makes a hypothesis that increased susceptibility to mosquito bites has a genetic basis. What is *not* an appropriate next step for her?

- A) She should present the data that promotes this hypothesis to get feedback from other scientists.
- B) She should repeat the experiments that led her to this hypothesis.
- C) She should propose a theory based on the results from her preliminary experiment.
- D) She should design a set of experiments that will test her hypothesis in a different way.

**67)** Which of the following is the *least* useful information to determine the evolutionary relatedness of two species?



- A) The environments they live in.
- B) Their DNA sequences.
- C) The morphological features that they have in common.
- D) All of the answers are important for determining evolutionary relatedness.

**FILL IN THE BLANK. Write the word or phrase that best completes each statement or answers the question.**

**68)** The scientific field called \_\_\_\_\_ is involved in the identification, classification, and naming of organisms.

**69)** The area of biology that states that living things undergo gradual structural and functional changes over long periods of time is referred to as \_\_\_\_\_.

**70)** Living things ordinarily too small to be seen with the unaided eye are termed \_\_\_\_\_.

**71)** Microorganisms composed only of hereditary material wrapped in a protein covering are referred to as \_\_\_\_\_.

**72)** Specialized internal structures, called \_\_\_\_\_, are found in eukaryotes but not in prokaryotes.

**73)** Well-known diseases that are increasing in occurrence are referred to as \_\_\_\_\_ diseases.

**SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.**

- 74) Discuss three different beneficial consequences and three different detrimental consequences of killing all microorganisms on the Earth.
- 75) Discuss five reasons why infectious diseases are increasing in number around the world.
- 76) Outline the experiment that Louis Pasteur did with swan-necked-shaped tubes to disprove spontaneous generation.
- 77) Predict one reason why water contaminated by the algae *Microcystis* cannot be made safe by boiling.
- 78) Cases of chikungunya virus in the United States are primarily restricted to Florida and the Southeastern coast. Briefly explain a reason for this distribution.

**79)** Briefly explain (1) why hospitals are such a common source of infectious disease and (2) why aseptic technique limits infection.

## **Answer Key**

Test name: Chapter 01 Test Bank

- 1) TRUE
- 2) TRUE
- 3) FALSE
- 4) FALSE
- 5) TRUE
- 6) FALSE
- 7) TRUE
- 8) FALSE
- 9) FALSE
- 10) TRUE
- 11) FALSE
- 12) FALSE
- 13) FALSE
- 14) TRUE
- 15) FALSE
- 16) FALSE
- 17) TRUE
- 18) C
- 19) A
- 20) B
- 21) B
- 22) A
- 23) D
- 24) C
- 25) E
- 26) B

- 27) C
- 28) A
- 29) E
- 30) B
- 31) C
- 32) D
- 33) E
- 34) B
- 35) D
- 36) A
- 37) B
- 38) B
- 39) D
- 40) A
- 41) B
- 42) A
- 43) C
- 44) B
- 45) E
- 46) B
- 47) C
- 48) A
- 49) A
- 50) A
- 51) C
- 52) D
- 53) A
- 54) D
- 55) C
- 56) B

- 57) A
- 58) E
- 59) A
- 60) D
- 61) C
- 62) B
- 63) B
- 64) C
- 65) A
- 66) C
- 67) A
- 68) taxonomy
- 69) Evolution
- 70) microorganisms
- 71) viruses
- 72) organelles
- 73) reemerging
- 74) Answer may vary
- 75) Answer may vary
- 76) Answer may vary
- 77) Answer may vary
- 78) Answer may vary
- 79) Answer may vary