1. Award: **10.00 points**

Microorganisms are best defined as organisms that _____.

- cause human disease
- → are too small to be seen with the unaided eye
- are infectious particles
- can only be found growing in laboratories
- lack a cell nucleus

References

Multiple Choice Section: 01.01

2. Award: **10.00 points**

Which of the following are not considered microorganisms?

- → Mosquitoes
- Viruses
- Protozoa
- Bacteria
- Fungi

References

Multiple Choice Section: 01.01

3. Award: **10.00 points**

Helminths are _____.

- infectious particles
- protozoa
- bacteria
- molds
- → parasitic worms

References

Multiple Choice Section: 01.01

4. Award: **10.00 points**

Among these types of microorganisms, the _____ are noncellular.

- helminths
- protozoans
- → viruses
- bacteria

References

Multiple Choice Section: 01.01 Section: 01.05

5. Award: **10.00 points**

Studies of the immune response to an infection caused by microorganisms would be performed by a/an _____.

- → ○ immunologist
- ○ epidemiologist
- ○ hypersensitivity specialist
- ○ geomicrobiologist

References

Multiple Choice Section: 01.01

6. Award: **10.00 points**

Which of the following pairs of career descriptions and work tasks is not correctly matched?

- → ○ Industrial microbiologist -- manipulate bacterial strains to be less pathogenic
- ○ Medical microbiologist -- identify the cause of a bladder infection at a hospital lab
- ○ Public health microbiologist -- track the incidence of AIDS in a population
- ○ Agricultural microbiologist -- identify bacterial causes of crop disease

References

Multiple Choice Section: 01.01

7. Award: **10.00 points**

A scientist who studies the influence of microbes in the formation of caves is called a/an _____.

- astrobiologist
- immunologist
- epidemiologist
- → geomicrobiologist

References

Multiple Choice Section: 01.01

8. Award: **10.00 points**

Astrobiology is considered a sub-discipline of microbiology because _____.

- all extraterrestrials known are microbial
- → life elsewhere in the universe is likely to be microbial
- only microbes can reproduce under the extreme conditions in outer space
- microbes are known to exist on other planets

References

Multiple Choice Section: 01.01

9. Award: **10.00 points**

Which of the following does not indicate microbe involvement in energy and nutrient flow?

- → ○ Thermal hot springs warmed by heat from earth's interior
- ○ Decomposition of dead matter and wastes
- ○ Digestion of complex carbohydrates in animal diets
- ○ Formation of greenhouse gases, CO_2 and methane

References

Multiple Choice Section: 01.02

10. Award: **10.00 points**

The microorganisms that recycle nutrients by breaking down dead matter and wastes are called _____.

- ○ pathogens
- ○ eukaryotes
- → ○ decomposers
- ○ fermenters
- ○ prokaryotes

References

Multiple Choice Section: 01.02

11. Award: **10.00 points**

The majority of oxygen in earth's atmosphere is a product of photosynthesis by _____.

- agricultural lands
- → microorganisms
- rain forests
- green plants

References

Multiple Choice Section: 01.02

12. Award: **10.00 points**

The three cell types discussed, eukaryotes, archaea, and bacteria, all derived from _____.

- cells with a true nucleus
- → a common ancestral cell
- archaea
- photosynthetic bacteria

References

Multiple Choice Section: 01.02

13. Award: **10.00 points**

The first cells appeared about _____ billion years ago.

- 5
- → 4
- 3.5
- 2
- 1

References

Multiple Choice Section: 01.02

14. Award: **10.00 points**

A hypothesis must be tested many times before it can be considered a theory.

- → True
- False

References

True / False Section: 01.02 Section: 01.06

15. Award: **10.00 points**

Which area of biology states that living things undergo gradual structural and functional changes over long periods of time?

- Phylogeny
- → Evolution
- Genetics
- Morphology
- Transformation

References

Multiple Choice Section: 01.02

16. Award: **10.00 points**

When humans manipulate the genes of microorganisms, the process is called _____.

- bioremediation
- taxonomy
- epidemiology
- → genetic engineering
- immunology

References

Multiple Choice Section: 01.03

17. Award: **10.00 points**

Which activity is an example of biotechnology?

- Egyptians using moldy bread on wounds
- Bacteria in the soil secreting an antibiotic to kill competitors
- Public health officials monitoring diseases in a community
- A microbiologist using the microscope to view bacteria
- → *Escherichia coli* producing human insulin

References

Multiple Choice Section: 01.03

18. Award: **10.00 points**

Which of the following is a traditional human use of microorganisms?

- Treating water and sewage
- Mass-producing antibiotics
- → Baking bread
- Cleaning up oil spills

References

Multiple Choice Section: 01.03

19. Award: **10.00 points**

Using microbes to detoxify a site contaminated with heavy metals is an example of _____.

- biotechnology
- immunology
- decomposition
- epidemiology
- → bioremediation

References

Multiple Choice Section: 01.03

20. Award: **10.00 points**

Disease-causing microorganisms are called _____.

- decomposers
- fermenters
- eukaryotes
- bacteria
- → pathogens

References

Multiple Choice Section: 01.04

21. Award: 10.00 points

The number one worldwide infectious diseases are _____.

- AIDS-related diseases
- diarrheal diseases
- → respiratory diseases
- measles and other rash diseases
- malaria and other protozoan diseases

References

Multiple Choice Section: 01.04

22. Award: 10.00 points

Many chronic medical conditions have been found to be associated with microbial agents.

- → True
- False

References

True / False Section: 01.04

23. Award: 10.00 points

The incidence of deaths from communicable disease is _____ in the United States compared to the entire world.

- → ○ less
- ○ greater
- ○ about the same

References

Multiple Choice Section: 01.04

24. Award: 10.00 points

In which way are bacteria and eukaryotes the same?

- ○ Contain membrane-bound organelles
- ○ Contain a nucleus to hold DNA
- → ○ Possess a cell membrane
- ○ Always have a cell wall for rigidity

References

Multiple Choice Section: 01.05

25. Award: 10.00 points

In which way are archaea and eukaryotes the same?

- Possess RNA instead of DNA
- Contain mitochondria for energy production
- → Have similar ssu rRNA sequences
- Contain membrane-bound organelles

References

Multiple Choice Section: 01.05

26. Award: 10.00 points

All bacteria and archaea are microorganisms, but only some eukaryotes are microorganisms.

- → True
- False

References

True / False Section: 01.05

27. Award: 10.00 points

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

- → ○ Lack cell structure
- ○ Cannot be seen without a microscope
- ○ Cause human disease
- ○ Lack a nucleus
- ○ Contain genetic material

References

Multiple Choice Section: 01.05

28. Award: 10.00 points

Which group of microorganisms is composed only of hereditary material wrapped in a protein covering?

- ○ Parasites
- ○ Bacteria
- ○ Fungi
- ○ Yeasts
- → ○ Viruses

References

Multiple Choice Section: 01.05

29. Award: 10.00 points

Eukaryotic cells are larger than bacterial or archaeal cells; all cells are larger than macromolecules. Where do viruses fit on this scale?

- Viruses are smaller than eukaryotic cells, but larger than bacterial or archaeal cells.
- Viruses are larger than eukaryotic cells.
- Viruses are smaller than macromolecules.
- → Viruses are smaller than bacterial or archaeal cells, but larger than macromolecules.

References

Multiple Choice Section: 01.05

30. Award: 10.00 points

In general, eukaryotic cells are about _____ times larger than bacterial or archaeal cells.

- 2
- → 10
- 50
- 1000

References

Multiple Choice Section: 01.05

31. Award: **10.00 points**

Archaeal cells are about _____ bacterial cells.

- ten times larger than
- ten times smaller than
- → the same size as

References

Multiple Choice Section: 01.05

32. Award: **10.00 points**

Which of the following historical microbiologists is incorrectly paired with his contribution to the science?

- Joseph Lister: promoted disinfecting hands and air prior to surgery
- Francesco Redi: tested spontaneous generation with meat exposed to the air or covered with cloth
- Antonie van Leeuwenhoek: made and used quality magnifying lenses to observe and record microorganisms
- → Louis Pasteur: demonstrated that anthrax was caused by a bacterium

References

Multiple Choice Section: 01.06

33. Award: 10.00 points

In the experiments constructed by Pasteur to disprove spontaneous generation, swan-necked flasks were used. Why was this shape of flask used in this experiment?

- Because the glass necks were stretched out, the heat used to sterilize the medium inside of the flask could not kill the bacteria in the neck.
- The shape of the glass neck allowed the bacteria into the flask and then into the media, but air could not enter.
- These flask shapes were the easiest and cheapest to produce.
- → The glass necks needed to be open to the air, yet constructed so that bacteria would settle in the lowest part of the neck.

References

Multiple Choice Section: 01.06

34. Award: 10.00 points

Koch's postulates are criteria used to establish that _____.

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

References

Multiple Choice Section: 01.06

35. Award: 10.00 points

Which of the following is NOT a recent discovery that has had a huge impact on the understanding of microbiology?

- Restriction enzymes
- PCR technique
- Human microbiome project
- Small RNAs
- → All are significant discoveries.

Refer to the text and read about the recent discoveries that have had a huge impact on the understanding of microbiology.

References

Multiple Choice Section: 01.06

36. Award: 10.00 points

The sum total of all the microbes in a certain environment is termed the _____.

- microbial niche
- domain
- biofilm
- phylogeny
- → microbiome

References

Multiple Choice Section: 01.06

37. Award: 10.00 points

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

- Development of a theory
- Systematic observation
- Formulation of a hypothesis
- → Belief in a preconceived idea
- Laboratory experimentation

References

Multiple Choice Section: 01.06

38. Award: 10.00 points

Experimentation _____.

- is the first step in the scientific method
- → provides a means to gather objective data
- provides a means to gather subjective data
- is designed to refute an hypothesis
- is designed to support an hypothesis

References

Multiple Choice Section: 01.06

39. Award: **10.00 points**

The scientific method includes all of the following except _____.

- → ○ publication
- ○ experimentation
- ○ observation
- ○ hypothesis

References

Multiple Choice Section: 01.06

40. Award: **10.00 points**

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

- → ○ True
- ○ False

References

True / False Section: 01.06

41. Award: 10.00 points

Caring for patients infected with a new virus requires safety precautions for medical personnel. Choosing appropriate procedures is an example of a/an _____ process.

- pathogenic
- → deductive
- hypothetical
- inductive

References

Multiple Choice Section: 01.06

42. Award: 10.00 points

Sterile is best described as _____.

- absence of spores
- pathogen-free
- pasteurized
- → absence of any life forms and viral particles
- homogenized

References

Multiple Choice Section: 01.06

43. Award: 10.00 points

Taxonomy does not involve _____.

- → ○ a common name
- ○ identification
- ○ nomenclature
- ○ classification

References

Multiple Choice Section: 01.07

44. Award: 10.00 points

Which scientific field is involved in the identification, classification, and naming of organisms?

- ○ Pathology
- → ○ Taxonomy
- ○ Epidemiology
- ○ Nomenclature
- ○ Phylogeny

References

Multiple Choice Section: 01.07

45. Award: 10.00 points

The orderly arrangement of organisms into a hierarchy of taxa is called _____.

- → ○ classification
- ○ identification
- ○ nomenclature
- ○ experimentation
- ○ biotechnology

References

Multiple Choice Section: 01.07

46. Award: 10.00 points

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

- → ○ True
- ○ False

References

True / False Section: 01.07

47. Award: **10.00 points**

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

- → ○ Kingdom
- ○ Family
- ○ Genus
- ○ Species
- ○ Phylum

References

Multiple Choice Section: 01.07

48. Award: **10.00 points**

The smallest and most significant taxon is a _____.

- ○ kingdom
- → ○ species
- ○ phylum
- ○ family
- ○ genus

References

Multiple Choice Section: 01.07

49. Award: 10.00 points

Select the correct descending taxonomic hierarchy (left to right).

- Kingdom, domain, phylum
- → Family, genus, species
- Genus, species, family
- Class, phylum, order
- Family, order, class

References

Multiple Choice Section: 01.07

50. Award: 10.00 points

A recently-developed mnemonic for remembering the taxonomic levels from Domain to Species is "Dumb Kids Prefer Candy Over Fancy Green Salad." The word "candy" here is a reminder of the taxonomic level of _____.

- colony
- → class
- chain
- category
- culture

References

Multiple Choice Section: 01.06

51. Award: 10.00 points

Which of the following is a scientific name?

- Anthrax
- Streptobacilli
- → *Streptococcus pyogenes*
- Gram-positive streptococcus

References

Multiple Choice Section: 01.07

52. Award: 10.00 points

When assigning a scientific name to an organism, _____.

- both genus and species names are capitalized
- → both genus and species names are italicized or underlined
- the species name is capitalized
- the species name is placed first
- the species name can be abbreviated

References

Multiple Choice Section: 01.07

53. Award: 10.00 points

Which scientific name is written correctly?

- staphylococcus aureus
- Staphylococcus Aureus
- S. aureus
- → *Staphylococcus aureus*
- Staphylococcus aureus

References

Multiple Choice Section: 01.07

54. Award: 10.00 points

The names of the three proposed domains are: Bacteria, Protista, and Eukarya.

- True
- → False

References

True / False Section: 01.07

55. Award: 10.00 points

A diagram of the three domains (Bacteria, Archaea, Eukarya) proceeding from the Last Common Ancestor would show Archaea _____.

- branching off the Domain Bacteria
- as the original cells from which the others derived
- → branching off the Domain Eukarya

References

Multiple Choice Section: 01.07

56. Award: 10.00 points

Analysis of the small subunit rRNAs from all organisms in the three current domains suggests that _____.

- the eukaryotes arose from prokaryotes
- the Archaea are more closely related to bacteria than eukaryotes
- bacteria, archaea, and eukaryotes are not related
- → all modern and extinct organisms on earth arose from a common ancestor

Refer to "Systems of Presenting a Universal Tree of Life" for a discussion of the ssu rRNAs and their role in taxonomy.

References

Multiple Choice Section: 01.07

57. Award: 10.00 points

The study of evolutionary relationships among organisms is called _____.

- recombinant DNA
- taxonomy
- → phylogeny
- genetics
- biotechnology

References

Multiple Choice Section: 01.02 Section: 01.07

58. Award: 10.00 points

A scientist studying the sequence of nucleotides in the rRNA of a bacterial species is working on _____.

- recombinant DNA
- bioremediation
- nomenclature
- determining if that species is the cause of a new disease
- → determining evolutionary relatedness

References

Multiple Choice Section: 01.07

59. Award: **10.00 points**

Trees of life that illustrate the phylogenetic relationships of all organisms were traditionally based on _____; newer methods for determining phylogeny rely on _____.

- nucleic acid sequences; morphology
- nucleic acid sequences; microbiomes
- morphology; nutritional requirements
- morphology; virology
- → morphology; nucleic acid sequences

References

Multiple Choice Section: 01.07