

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

- 1) Which of the following pairs is mismatched? 1) _____
A) Koch – aseptic surgery B) Pasteur – proof of biogenesis
C) Ehrlich – chemotherapy D) Jenner – vaccination
- 2) Which of the following is a scientific name? 2) _____
A) *Streptococcus pyogenes*
B) IGAS
C) Streptococci
D) Flesh-eating bacteria
E) Group A streptococcus
- 3) Which of the following is *NOT* a domain in the three-domain system? 3) _____
A) Archaea B) Eukarya C) Bacteria D) Animalia
- 4) Which of the following statements about fungi is true? 4) _____
A) All are multicellular.
B) All require organic material for growth.
C) All are prokaryotic.
D) All grow using sunlight and carbon dioxide.
E) All are plants.
- 5) Which of the following statements about protozoa is false? 5) _____
A) All have complex cells.
B) They have rigid cell walls.
C) They are classified by their method of locomotion.
D) All are unicellular.
E) All are eukaryotic.
- 6) Which of the following statements about viruses is false? 6) _____
A) They are parasites.
B) They cannot metabolize nutrients.
C) They cannot reproduce themselves.
D) They have both DNA and RNA.
E) They lack cells.
- 7) Regarding the experiments that "proved" spontaneous generation, which of the following statements is probably true? 7) _____
A) Excess carbon dioxide was present.
B) The food source could not support life.
C) Microorganisms were already present.
D) Too much heat was applied.
E) Air was lacking.

- 8) Regarding Pasteur's experiments with the S-neck flask, which of the following statements is true? 8) _____
- A) Any possibility of contamination was removed.
 - B) There was a food source involved.
 - C) There was air involved.
 - D) All microorganisms were killed before beginning.
 - E) All of the above.
- 9) Which of the following statements about insect control by microorganisms is true? 9) _____
- A) The microorganisms may cause disease in other animals.
 - B) This technique is just as dangerous as the use of chemical pesticides.
 - C) The insects develop resistance to the microorganisms.
 - D) The microorganisms are permanent in the environment.
 - E) The microorganisms are specific for the insect pest.
- 10) Which of the following pairs is mismatched? 10) _____
- A) Hooke – cell theory
 - B) Lister – aseptic surgery
 - C) van Leeuwenhoek – germ theory
 - D) Pasteur – fermentation
 - E) Jenner – vaccines
- 11) Who disproved the theory of spontaneous generation? 11) _____
- A) Koch
 - B) van Leeuwenhoek
 - C) Virchow
 - D) Pasteur
 - E) Hooke
- 12) Who observed cells in plant material? 12) _____
- A) van Leeuwenhoek
 - B) Lister
 - C) Koch
 - D) Hooke
 - E) Pasteur
- 13) Who was the first to observe microorganisms with a microscope? 13) _____
- A) Koch
 - B) Weizmann
 - C) Hooke
 - D) van Leeuwenhoek
 - E) Pasteur
- 14) Who proved that microorganisms cause disease? 14) _____
- A) Koch
 - B) van Leeuwenhoek
 - C) Semmelweis
 - D) Pasteur
 - E) Fleming

- 15) Which of the following is a scientific name? 15) _____
A) *Mycobacterium leprae* B) Leprosy bacterium
C) Hansen's bacillus D) Acid-fast bacteria
- 16) Classification of organisms in the three domains is based on 16) _____
A) Number of cells.
B) Nucleus.
C) Nutritional type.
D) Type of cell.
E) Cell wall.
- 17) Which of the following statements is false? 17) _____
A) All bacteria lack nuclear membranes.
B) All protozoa are unicellular.
C) All fungi have nuclear membranes.
D) All fungi are multicellular.
E) All viruses are parasites.
- 18) Which of the following statements is true? 18) _____
A) Protozoa have rigid cell walls.
B) Viruses cannot reproduce outside a host cell.
C) Algae are parasites.
D) Bacteria cannot move.
E) Fungi are plants.
- 19) Which of the following findings was essential for Jenner's vaccination process? 19) _____
A) Disease is caused by viruses.
B) Vaccination provides immunity.
C) A weakened microorganism will not cause disease.
D) A weakened microorganism may produce immunity.
E) Someone who recovers from a disease will not acquire that disease again.
- 20) Which of the following requirements was *NOT* necessary for Pasteur to disprove spontaneous generation? 20) _____
A) Providing a food source that would support growth
B) Identifying bacteria
C) Removing microorganisms that were initially present
D) Supplying air
E) Keeping microorganisms out
- 21) Which of the following pairs is mismatched? 21) _____
A) Virologist – studies human immunodeficiency virus
B) Molecular biologist – studies recombinant DNA
C) Microbial physiologist – studies fermentation of sourdough bread
D) Microbial ecologist – studies bacteria that degrade oil
E) Immunologist – studies ecology of *Legionella pneumophila*

- 22) Which of the following pairs is mismatched? 22) _____
A) Penicillin – antibiotic
B) Chemotherapy – treatment of disease
C) Normal microbiota – harmful
D) Pathogen – disease causing
E) Vaccine – a preparation of microorganisms
- 23) Which one of the following does *NOT* belong with the others? 23) _____
A) Bacteria B) Eukarya C) Archaea D) Fungi
- 24) Which of the following is *NOT* an example of biotechnology? 24) _____
A) Bacterial production of human insulin
B) Bacterial production of yogurt
C) Bacterial production of French bread
D) Bacterial production of vinegar
E) Bacterial degradation of a dead animal
- 25) Which of the following *CANNOT* be made by using recombinant DNA technology? 25) _____
A) Human hormones
B) Pharmaceutical drugs
C) Life
D) Vaccines
E) Pest-resistant crops
- 26) Which of the following is the best definition of *biotechnology*? 26) _____
A) Bacterial production of foods
B) The curing of diseases
C) The use of living organisms to make desired products
D) The use of microorganisms in sewage treatment
E) The development of recombinant DNA technology
- 27) You are observing a cell through a microscope and note that it has no apparent nucleus. You conclude that it most likely 27) _____
A) Has a cellulose cell wall.
B) Has a peptidoglycan cell wall.
C) Moves by pseudopods.
D) Is a plant cell.
E) Is part of a multicellular animal.
- 28) A nucleated, green cell that moves by means of flagella is a(n) 28) _____
A) Fungus.
B) Virus.
C) Bacterium.
D) Alga.
E) Helminth.

- 29) An agent that reproduces in cells but is *NOT* composed of cells and contains RNA as its genetic material is a(n) 29) _____
A) Helminth.
B) Virus.
C) Alga.
D) Fungus.
E) Bacterium.
- 30) A multicellular organism that has chitin cell walls and absorbs organic material is a(n) 30) _____
A) Fungus.
B) Helminth.
C) Virus.
D) Bacterium.
E) Alga.
- 31) A multicellular organism that has a mouth and lives in an animal host is a(n) 31) _____
A) Alga.
B) Virus.
C) Helminth.
D) Bacterium.
E) Fungus.
- 32) In the name *Escherichia coli*, *coli* is the 32) _____
A) Domain.
B) Kingdom.
C) Specific epithet.
D) Discoverer.
E) Genus.
- 33) Which of the following pairs is mismatched? 33) _____
A) Weizmann – virology
B) Jenner – immunology
C) Jacob and Monod – microbial genetics
D) Winogradsky – microbial ecology
E) Lancefield – immunology
- 34) You are looking at a white cottony growth on a culture medium. Microscopic examination reveals it is multicellular. Which of the following conclusions about this organism is false? 34) _____
A) It has cell walls.
B) It absorbs organic nutrients.
C) It is a bacterium.
D) It has DNA enclosed in a nucleus.
E) It is eukaryotic.
- 35) Which of the following groups include members that lack DNA? 35) _____
A) Viruses
B) Fungi
C) Protozoa
D) Bacteria
E) Helminths

- 36) Which one of the following does *NOT* belong with the others? 36) _____
A) Nucleus B) Cellulose C) Peptidoglycan D) Chitin
- 37) Which of the following organisms lack cell walls? 37) _____
A) Bacteria B) Fungi C) Animalia D) Plantae
- 38) Which of the following does *NOT* belong with the others? 38) _____
A) Animalia
B) Fungi
C) Protista
D) Plantae
E) Helminthes
- 39) Fungi differ from bacteria in that fungi 39) _____
A) Spoil food.
B) Have DNA.
C) Are cellular.
D) Have cell walls.
E) Have a nucleus.
- 40) Archaea differ from bacteria in that archaea 40) _____
A) Use organic compounds for food.
B) Are prokaryotic.
C) Lack nuclei.
D) Lack peptidoglycan.
E) Reproduce by binary fission.
- 41) Bacteria differ from viruses in that bacteria 41) _____
A) Are composed of cells. B) Have DNA and RNA.
C) Can live without a host. D) All of the above.
- 42) Which of the following lack a nucleus? 42) _____
A) Fungi
B) Animalia
C) Bacteria
D) Protozoa
E) None of the above
- 43) Regular use of antibacterial cleaning products 43) _____
A) Promotes survival of bacteria that are resistant.
B) Is necessary for good health.
C) Prevents bacteria from growing.
D) Prevents occurrence of infections.
E) A, B, and D

- 44) Which of the following statements about biofilms is false? 44) _____
- A) Biofilms in pipes block the flow of water.
 - B) Compared to free-living bacteria, biofilms are more sensitive to antibiotics.
 - C) Biofilms in your body protect mucous membranes from harmful microbes.
 - D) Biofilms on medical implants cause infections.
 - E) Biofilms on rocks provide food for animals.
- 45) Which of the following processes in making blue jeans is incorrectly matched? 45) _____
- A) Cotton – fungal hyphae
 - B) Blue dye – *E. coli* indigo
 - C) Stone-washed – fungal enzyme
 - D) Plastic – bacterial PHA
 - E) Debleaching – bacterial enzyme

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

- 46) In 1835 Bassi showed that a fungus caused a silkworm disease, and in 1865 Pasteur discovered that a protozoan caused another silkworm disease. Why do we use Koch's postulates instead of "Bassi's" or "Pasteur's" postulates?
- 47) List two examples of biotechnology that involve recombinant DNA technology and two examples that do not.
- 48) Paul Berg received the Nobel Prize for developing the procedure for incorporating fragments of animal DNA into bacteria. List some reasons why his work was a major contribution to science.

Answer Key

Testname: UNTITLED1

- 1) A
Skill: Recall
- 2) A
Skill: Analysis
- 3) D
Skill: Recall
- 4) B
Skill: Recall
- 5) B
Skill: Recall
- 6) D
Skill: Recall
- 7) C
Skill: Analysis
- 8) E
Skill: Understanding
- 9) E
Skill: Analysis
- 10) C
Skill: Recall
- 11) D
Skill: Recall
- 12) D
Skill: Recall
- 13) D
Skill: Recall
- 14) A
Skill: Recall
- 15) A
Skill: Recall
- 16) D
Skill: Recall
- 17) D
Skill: Analysis
- 18) B
Skill: Recall
- 19) D
Skill: Analysis
- 20) B
Skill: Analysis
- 21) E
Skill: Analysis
- 22) C
Skill: Recall
- 23) D
Skill: Understanding

Answer Key

Testname: UNTITLED1

- 24) E
Skill: Analysis
- 25) C
Skill: Understanding
- 26) C
Skill: Analysis
- 27) B
Skill: Analysis
- 28) D
Skill: Recall
- 29) B
Skill: Recall
- 30) A
Skill: Recall
- 31) C
Skill: Recall
- 32) C
Skill: Analysis
- 33) A
Skill: Recall
- 34) C
Skill: Analysis
- 35) A
Skill: Recall
- 36) A
Skill: Understanding
- 37) C
Skill: Recall
- 38) C
Skill: Understanding
- 39) E
Skill: Analysis
- 40) D
Skill: Analysis
- 41) D
Skill: Analysis
- 42) C
Skill: Recall
- 43) A
Skill: Recall
- 44) B
Skill: Recall
- 45) A
Skill: Recall
- 46)
Skill:

Answer Key

Testname: UNTITLED1

47)

Skill:

48)

Skill: