Microbiology / Active Lecture Questions
Chapter 10 – Classification of Microorganisms

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2 Bergey’s Manual of Systematic Bacteriology differs from Bergey’s Manual of Determinative Bacteriology in that the former
a. groups bacteria into species.
b. groups bacteria according to phylogenetic relationships.
c. groups bacteria according to pathogenic properties.
d. groups bacteria into 19 species.
e. all of the above

3 Bacillus and Lactobacillus are not in the same order. This indicates that which one of the following is not sufficient to assign an organism to a taxon?
a. biochemical characteristics
b. amino acid sequencing
c. phage typing
d. serology
e. morphological characteristics

4 Which of the following is used to classify organisms into the Kingdom Fungi?
a. ability to photosynthesize; possess a cell wall
b. unicellular; possess cell wall; prokaryotic
c. unicellular; lacking cell wall; eukaryotic
d. absorptive; possess cell wall; eukaryotic
e. ingestive; lacking cell wall; multicellular; prokaryotic

5 Which of the following is not true about scientific nomenclature?
a. Each name is specific.
b. Names vary with geographical location.
c. The names are standardized.
d. Each name consists of a genus and specific epithet.
e. It was first designed by Linnaeus.

6 You could identify an unknown bacterium by all of the following except
a. hybridizing a DNA probe from a known bacterium with the unknown’s DNA.
b. making a fatty acid profile of the unknown.
c. specific antiserum agglutinating the unknown.
d. ribosomal RNA sequencing.
e. percentage of guanine + cytosine.
7 The wall-less mycoplasmas are considered to be related to gram-positive bacteria. Which of the following would provide the most compelling evidence for this?
   a. They share common rRNA sequences.
   b. Some gram-positive bacteria and some mycoplasmas produce catalase.
   c. Both groups are prokaryotic.
   d. Some gram-positive bacteria and some mycoplasmas have coccus-shaped cells.
   e. Both groups contain human pathogens.

8 Into which group would you place a multicellular organism that has a mouth and lives inside the human liver?
   a. Animalia
   b. Fungi
   c. Plantae
   d. Firmicutes
   e. Proteobacteria

9 Into which group would you place a photosynthetic organism that lacks a nucleus and has a thin peptidoglycan wall surrounded by an outer membrane?
   a. Animalia
   b. Fungi
   c. Plantae
   d. Firmicutes
   e. Proteobacteria

10 Use the following choices to answer questions 9 and 10:
   1. 9 + 2 flagella
   2. 70S ribosome
   3. fimbria
   4. nucleus
   5. peptidoglycan
   6. plasma membrane

11 Which is (are) found in all three domains?
   a. 2, 6
   b. 5
   c. 2, 4, 6
   d. 1, 3, 5
   e. all six

12 Which is (are) found only in prokaryotes?
   a. 1, 4, 6
   b. 3, 5
   c. 1, 2
   d. 4
   e. 2, 4, 5
13 Grouping organisms into categories to highlight similarities is called
a. Systematics
b. Taxonomy
c. Hierarchy
d. Nomenclature

14 Which of the following statements about the members of the Kingdom Animalia is FALSE?
 a. They can photosynthesize
 b. They are multicellular
 c. They use organic carbon sources
 d. They use organic energy sources

15 What is the phylogenetic classification of the Domain Bacteria based on?
 a. Cell morphology
 b. rRNA sequences
 c. Gram stain reaction
 d. Habitat

16 Viruses cannot be classified in a kingdom because
 a. Viruses are not composed of cells
 b. Viruses are obligate parasites
 c. Some viruses can incorporate their genome into a host’s genome
 d. Viruses direct anabolic pathways of host cells

17 A strain can be defined as
 a. The same as a species
 b. A population of cells with similar characteristics
 c. A pure culture
 d. A group of cells all derived from a single parent

18 In the scientific name Staphylococcus aureus, Staphylococcus is the
 a. Class
 b. Genus
 c. Species
 d. Family

19 Bacteria and archaea share which of the following characteristics?
 a. Possess prokaryotic cells
 b. Sensitivity to antibiotics
 c. Peptidoglycan cell walls
 d. Methionine is the start signal for protein synthesis
20 Fossil evidence indicates that prokaryotic cells first existed on the Earth
a. 350 years ago
b. 3.5 billion years ago
c. 3500 years ago
d. 3.5 million years ago

21 Phage typing is based on the fact that
a. Bacteria are destroyed by viruses
b. Phages and bacteria are related
c. Viruses cause disease
d. Bacterial viruses attack specific cells

22 Historically, eukaryotic organisms that didn’t fit into other kingdoms were placed into which kingdom?
   a. Protista
   b. Fungi
   c. Plantae
   d. Animalia

23 Into which group would you place a multicellular organism that has a mouth and lives inside the human liver?
   a. Plantae
   b. Fungi
   c. Animalia
   d. Proteobacteria

24 Into which group would you place multi-cellular photoautotrophs?
   a. Fungi
   b. Protista
   c. Animalia
   d. Plantae

25 Biochemical tests are used to determine
   a. Staining characteristics
   b. Enzymatic activities
   c. Nucleic acid-base composition
   d. Amino acid sequences

26 Which of the following is NOT used in a standard bacteriology laboratory identification?
   a. Serological testing
   b. Morphology determination
   c. Nucleic acid-base composition
d. Biochemical testing
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27 Nucleic acid hybridization is based on the fact that
a. DNA is composed of genes
b. Pairing between complementary bases occurs
c. A chromosome is composed of complementary strands
d. The strands of DNA can be separated

28 Which of the following statements about the kingdom animalia is false?
a. They are multicellular
b. They can photosynthesize
c. They have eukaryotic cells
d. They use carbon based energy sources

29 What is an outstanding characteristic of the kingdom fungi?
a. All the members are photosynthetic
b. All members are microscopic
c. All members reproduce asexually only
d. Members absorb dissolved organic matter.

30 A genus can be best defined as?
a. A taxon composed of one or more species below a family
b. A taxon belonging to a species
c. The most specific taxon
d. A taxon comprised of classes
e. A taxon comprised of families

31 Phylogenetic classification is based on?
a. Gram reactions
b. Diseases
c. Habitat
d. rRNA sequences
e. randomness