

Name: _____ Date: _____

Answer Key: A Microbe's Guide to the Galaxy: College Microbiology Quiz

Assess foundational recall of taxonomic domains and cellular architecture focusing on pathogenic and industrial microorganisms.

1. Which of the following organisms is characterized by a cell wall composed of peptidoglycan?

Answer: A) *Staphylococcus aureus*

Peptidoglycan is a unique structural signature of true bacteria, such as the genus *Staphylococcus*.

2. Prions are considered microorganisms because they contain a simplified genetic code of RNA.

Answer: B) False

Prions are infectious proteins that lack any nucleic acids (DNA or RNA) entirely.

3. The ___ are a group of eukaryotic microorganisms that typically lack a cell wall and obtain nutrients through ingestion or absorption.

Answer: C) Protozoa

Protozoa are unicellular eukaryotic heterotrophs that generally lack the rigid cell walls found in fungi or algae.

4. Which microorganism is widely utilized in the biotechnology industry for the production of ethanol and bread leavening?

Answer: B) *Saccharomyces cerevisiae*

Saccharomyces cerevisiae, a species of yeast (fungi), is the primary organism used for fermentation in baking and brewing.

5. Archaea are prokaryotic organisms that are often found in extreme environments such as hydrothermal vents.

Answer: A) True

Archaea are prokaryotes distinct from bacteria; many are extremophiles capable of surviving high heat, salinity, or acidity.

Name: _____ Date: _____

6. An organism that requires a living host cell to replicate and consists of a protein coat surrounding a nucleic acid core is known as a ____.

Answer: C) Virus

Viruses are obligate intracellular parasites composed of a capsid (protein) and a genome (DNA or RNA).

7. Which of the following is a primary difference between prokaryotic and eukaryotic microbes?

Answer: A) Prokaryotes lack a nuclear membrane.

The defining characteristic of prokaryotes (bacteria and archaea) is the absence of a membrane-bound nucleus.

8. Helminths, such as tapeworms, are technically studied in microbiology because their infective stages (eggs/larvae) are microscopic.

Answer: A) True

While adult helminths are macroscopic, microbiology includes them because diagnosis depends on identifying microscopic eggs or larvae.

9. ____ are photosynthetic eukaryotes that play a critical role as primary producers in aquatic food webs.

Answer: B) Algae

Algae are the eukaryotic photosynthetic organisms in water; while cyanobacteria also photosynthesize, they are prokaryotic.

10. Which of these is a common feature of all cellular microorganisms, but not viruses?

Answer: C) Autonomous metabolism

Viruses lack their own metabolism and must hijack the host's metabolic machinery to produce energy and proteins.