

Microbial physiology questions sheet

Classification of organisms

1. What is the current classification system used for organisms?
2. Why were small subunit RNA used?
3. _____ sequences mutate slower than _____ sequences.
4. Name two prokaryotic microbes and three eukaryotic microbes.
5. What makes the cell walls of bacteria and archaea?
6. Draw the flow tree of bacteria classification.
7. Gram positive bacteria are _____ colour and gram negative are _____ colour.
8. What came first? Gram negative or positive?
9. What is peptidoglycan made of?
10. Name two things present only on gram positive cell walls?
11. Give a use and an example of alpha, beta and gamma proteobacteria.
12. What are firmicutes?
13. Archaea are more related to _____ than _____.
14. Name three similarities of archaea and bacteria.
15. Name the three types of thermophiles.
16. What are fungi cell walls composed of?
17. Name a unicellular and multicellular example of fungi.
18. Do protozoa have introns?
19. State three similarities between Protozoa and Algae.

Fundamental categories of microbes

1. State three things that anabolic reactions need.
2. Why do anabolic reactions need energy?
3. What is the specialized organelle in cyanobacteria called and what does it contain? Why do they do this?
4. Dissect the following terms; photolithotrophy, photoorganotrophy, chemolithotrophy, chemorganotrophy, heterotrophs, autotrophs.
5. _____ lives close to mine drains and converts _____ to _____. They also convert _____ to sulphates. They thrive in _____ conditions.

Bacterial growth

1. Name four ways of bacterial growth and explain each in brief detail.
2. State four requirements of replication.
3. Describe the separation process of the bacterial cells that have replicated.
4. Where is DNA replicated?
5. State three ways of counting bacteria and state the pros and cons of each.
6. Draw the bacterial growth curve and explain each stage.
7. Average doubling time = _____.
8. Under _____ conditions, doubling occurs at regular intervals and results in _____ growth.