

BSC 1005: Biological Principles

Exam 3 Review Guide

Lecture 16: Microbes

Main Concepts

What are the two domains for classifying organisms and what groups are included in each domain?

Prokaryotic Cells: Domain Archaea (Bacteria living under extreme conditions) & Domain Bacteria (Bacteria and Cyanobacteria)

Eukaryotic Cells: Domain Eukarya (Kingdom Protista, Fungi, Plantae, Animalia)

What are parasites? What effects do they have on their host species?

Parasites live on or in a host species, They can live together symbiotically or the parasite can harm the host

What is symbiosis? What are the effects of a symbiotic relationship on species involved in interaction?

Symbiosis is when any organism has to live on or in another organism to sustain its life

How do coral and zooxanthellae interact? What happens during coral bleaching? What are the effects of coral bleaching?

Corals provide shelter and protection for the zooxanthellae while also providing Nutrients (N and P) and Access to sunlight

Zooxanthellae provide carbohydrates from photosynthesis.

During Coral bleaching coral expels zooxanthellae which results in an increased risk of mortality (Slower growth, reduced reproductive rate, and susceptible to disease)

If coral bleaching continues it threatens the survival of all species using coral reefs. Because Corals and zooxanthellae create physical habitat for coral reef systems

Are viruses considered a living cell? Why or why not?

no because they only reproduce in a host cell, have "borrowed life"

What causes malaria? What advantages do individuals heterozygous for sickle cell allele have against malaria?

Malaria is caused by Plasmodium.

Individuals with heterozygous allele for sickle cell have decreased symptoms of malaria because the parasite cannot enter a sickle-cell.

Vocabulary

Symbiosis: when any organism has to live on or in another organism to sustain its life

Parasites: Consume body tissue or fluids of host organism

Pathogens: Disease causing parasites

Microbes: A microscopic microorganism that can be single or multi celled and has a symbiotic relationship with other organisms

Viruses: Not a cell, a small infectious particle consisting of nucleic acid enclosed in a protein coat

Lecture 17: The Working Plant

Main Concepts

What are the types of tissues found in plants?

Meristem tissue: Undifferentiated cells that divide

Permanent Tissue: Dermal, Ground, and Vascular tissue

What are functions of the types of tissues found in plants?

Meristem tissue: produces permanent tissues

Dermal Tissue: "Skin" of plant, protects, insulates, and conserves water

Ground Tissue: synthesizes organic molecules, support structures, storage

Vascular Tissue:

- *Xylem: Transports water and minerals from roots*
- *Phloem: Transports sugar and nutrients from leaves to rest of plant*

What plant organs make up the shoot and root systems?

Shoot System

- *Flower*
- *Terminal bud (shoot apex)*
- *Node*
- *Internode*
- *Axillary bud*
- *Terminal bud of branch*
- *Vegetative branch*
- *Lead (Petiole & Blade)*
- *Stem*

Root System

- *Taproot*
- *Lateral roots*

What types of plants are considered angiosperms?

Flowering plants: Reproduce by seeds inside of an ovary

What adaptations do plants have for water conservation?

Thick, succulent leaves

Waxy secretions on leaves and stem

Wilting

C₄ Plants: Primarily grass species: limited opening of stomata during the day

CAM plants: common in succulent plants; Stomata open at night closed during day