BIOL 1012 FINAL PAL REVIEW

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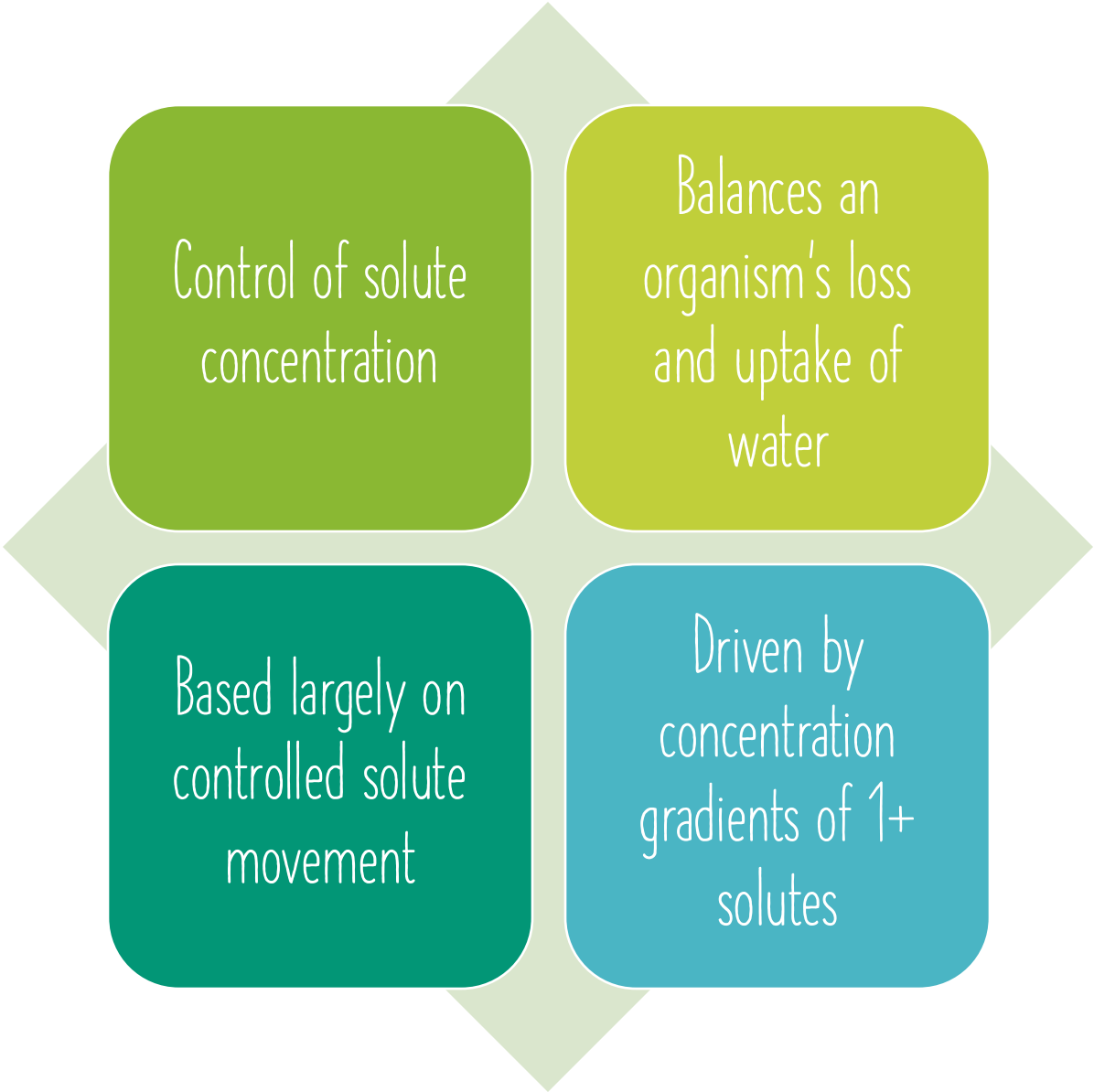
YOU'RE ALMOST THERE!

YOU GOT THIS!

OSMOREGULATION



MATCH EACH TERM TO IT'S DEFININITION

- Isoosmotic
- Hypoosmotic
- Hyperosmotic
- Aquaporin
- Osmolarity
- Tonicity

A Higher concentration of solute than the environment around it

B Proteins in the membrane that allow for water to enter and exit the cell

C Effect of a solution on the volume of the cell

D Lower concentration than the environment around it

E Equal flow rate of solutes from one side of the membrane to the other

F Measure of total concentration of solutes in a solution

MOST MARINE INVERTEBRATES ARE OSMOCONFORMERS, AND MARINE VERTEBRATES OSMOREGULATORS...

Would marine fish be hypoosmotic or hyperosmotic? What about freshwater fish?

ARE SALMON HYPO- OR HYPEROSMOTIC?

WHAT IS THE DIFFERENCE BETWEEN...

- Euryhaline

Can tolerate large fluctuations in solute concentration of their environment (external osmolarity)

- Stenohaline

Cannot tolerate significant fluctuations in external osmolarity, will die if fluctuations are too large

THE PROCESS OF LOSING MOST OF ONE'S BODY WATER AND SURVIVING IN A DORMANT STATE IS KNOWN AS WHAT?

Anhydrobiosis

WHICH OF THE FOLLOWING IS NOT AN EXAMPLE OF HOW LAND ANIMALS OSMOREGULATE?

- Eating moist foods & drinking water
- Use of transport epithelia to move solutes
- Nocturnal behaviours
- Filtration of bodily fluids
- Excretion of filtrates & wastes
- Reabsorption of valuable solutes
- Secretion of nonessential solutes

MATCH THE ORGANISMS TO THEIR EXCRETORY SYSTEMS

- Paramecium and other water dwelling protists
- Flatworms
- Insects
- Earthworms
- Mammals

Metanephridia: Pair of open-ended tubules that collect coelomic fluid and filter to excrete dilute urine

Kidneys: Highly organized structures with various tubules, nephrons, and ducts to filter nutrients and wastes from the blood

Contractile Vacuole: Collect water and waste from cytoplasm

Protonephridia: Dead end tubules connected to external openings to excrete dilute urine

Malpighian Tubules: Transport epithelial cells remove wastes from hemolymph

INVASION

WHAT DOES IT MEAN FOR A SPECIES TO BE CRYPTOGENIC?

WHAT ARE THE MEANINGS OF THE FOLLOWING TERMS: THREATENED, ENDANGERED, EXTINCT

What is the difference between Extinction and Extirpation?

THREATS TO BIODIVERSITY

SPECIES ARE GOOD INVADERS IF THEY...

- Can easily disperse themselves
- Are associated with human activities
- Can easily survive and compete in new habitats
- Reproduce rapidly with lots of progeny
- Can tolerate fluctuations in environmental conditions
- Grow at a fast rate
- Exhibit different phenotypic variations (phenotypic plasticity)

ARE ALL SPECIES INTRODUCTIONS INTENTIONAL? ARE ALL OF THEM BAD?

NO & NO!

WHAT ARE THE 3 P'S THAT ORGANISMS DEFEND THEMSELVES AGAINST?

DEFENSE MECHANISMS AGAINST PATHOGENS AND PARASITES

Innate Immunity - Fast, In All Animals

- Barriers (skin, membranes, secretions, microbiota)
- Internal Defenses (defense cells, proteins, inflammation)

Adaptive Immunity - Slow, Vertebrates Only

- Humoral Response (antibodies)
- Cell-Mediated (cytotoxic body cells kill infected)

PLANTS RESPOND TO PATHOGENS AND PARASITES BY SIGNAL TRANSDUCTION

This allows them to become resistant in other areas of the plant aside from the spot that has already been attacked

WHAT ARE SOME EXAMPLES OF THE FOLLOWING PREDATION PREVENTION METHODS?

Behavioural Defense

Chemical Defense

Physical Defense

MATCH EACH TERM TO ITS DEFINITION

- Cryptic Colouration
- Batesian Mimicry
- Aposematic Colouration
- Mullerian Mimicry

A	Warning Colours (ex. Bright colours for toxic/poisonous animals)
B	Harmless animals that look like dangerous predators
C	Camouflage, hiding from predators
D	Dangerous animals look like other dangerous animals

HOW DO ORGANISMS DEFEND THEIR RESOURCES?

ALTRUISM

- Behaviour that reduces one's individual fitness, benefiting others
- Usually occurs when a relative is in danger

What are the 3 determinants that contribute to altruistic behaviour? (Think Hamilton's Rule)

WHAT IS THE DIFFERENCE BETWEEN THE FOLLOWING

- Population

A group of con-specific individuals that live together, occupy same niche, interact and interbreed with one another (same species)

- Community

A group of populations of various species living close to each other, interacting with one another

- Ecosystem

All the organisms in a given area, and the abiotic/biotic factors they interact with

MATCH EACH TERM TO IT'S DEFINITION

- Density
- Dispersion
- Richness
- Relative Abundance

Number of species in a community

Pattern of spacing among individuals within population boundaries

Number of individuals of a population within a specific unit area/volume

Proportional representation of populations in a community

WHAT ARE THE METHODS OF ESTIMATING POPULATION SIZE?

WHAT'S THE DIFFERENCE?

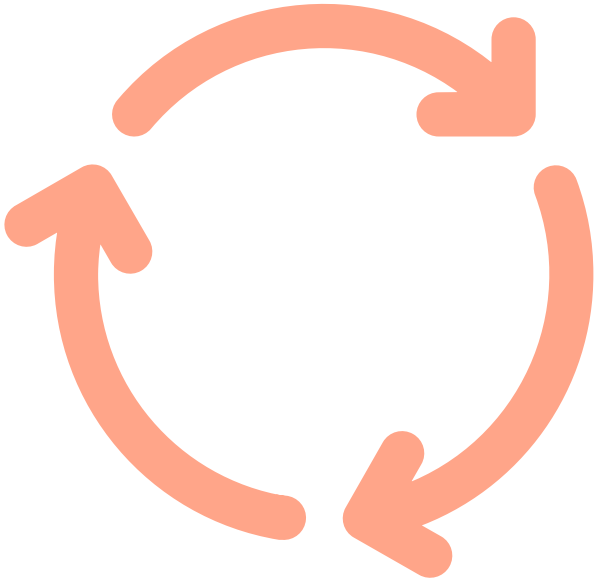
- K-selection

Selects life history traits sensitive to population density

- r-selection

Selects life history traits that maximize reproduction

WHAT ARE THE 2 MAIN REASONS FOR POPULATION CYCLES?



MATCH THE TERM TO IT'S DEFINITION

- Predation
- Herbivory
- Competition
- Parasitism
- Mutualism
- Commensalism
- Facilitation

- One organism benefits, other is indifferent
- One organism benefits at other's expense
- One organism is preyed upon by another
- Plant predation
- Both organisms benefit from interaction
- One organism makes environment more suitable for others
- Both organisms are affected negatively

ECOLOGICAL NICHE

What are they?

Fundamental vs Realized

What's resource partitioning?

TROPHIC STRUCTURES

- Food Chain vs Food Web
- What is a Keystone Species?
- Bottom Up vs Top Down

WHAT IS A DETRITOVORE?

ECOSYSTEM PRODUCTIVITY

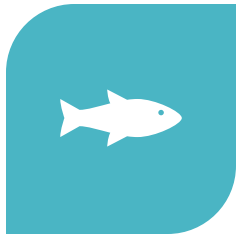
- Gross Primary Production (GPP) = Total energy produced from autotrophs
- R_a = energy used by autotrophs for respiration
- Net Primary Production (NPP) = GPP- R_a
- Net Ecosystem Production (NEP) = GPP-R_T (R_T is the energy used by all ecosystem for respiration)
- What percentage of biomass in one trophic level is seen in the next trophic level (level 1 to level 2)

WHICH OF THE FOLLOWING IS NOT A LIMITER OF NPP

TEMPERATURE

WATER

LIGHT



OCEAN ZONATION

LIMITING NUTRIENTS

ECOSYSTEM RESTORATION

- Bioremediation

Organisms such as plants, bacteria, fungi, etc. used to detoxify polluted ecosystems

- Augmentation

Essential materials (for example, nutrients that encourage plant growth in nutrient poor soil) added to degraded ecosystems


GOOD LUCK EVERYBODY! THANKS FOR COMING TO PAL! I WON'T
BE HERE NEXT YEAR, BUT I WISH YOU ALL THE BEST!