Review for the Exam#4/The Final Exam

Overflow from Exam #3

Lecture #20: Community Ecology

Big Idea:
1. What happens if humans decrease biodiversity in a habitat?
2. How do human affect biodiversity?

3. What 4 factors have caused a decrease in biodiversity and which among them is the worst?
4. What is a keystone species? Explain the role of the otter in their ecosystem and what would happen without them?
5. There are three types of interspecific interactions, what are they and be able to give an example of each.
6. Which one results in the competitive exclusion principle? What is this?
7. What are three things that prey have evolved to avoid predation? Why do prey seem to evolve faster than predators?

Lecture #21: Ecology - Ecosystems:

Big Idea:
1. What is a niche and how is it different than a biome?
2. What does a species need to survive?

3. What is ecological succession? Why are roots so important to primary succession?
4. Explain resource partitioning– what causes it?
5. Tropic structure is related to the 2 laws of energy – how?
6. Why is a food web better at describing relationships than a food chain?
7. What is the role of a Producer? Consumer? Primary Consumer Vs secondary Consumer? Top predator? – which are there more of and why?
8. What is the 10% rule?
9. What is a biome?
10. Why is light so important in a marine Biome?
11. What is the importance of a wetland biome?
12. Eutrophication is a process that causes what? (tell the story)
13. How does biomagnification of mercury work?
14. Explain the phosphorus cycle?

BIOLOGY 11 - REVIEW FOR EXAM 4

Along with all your Blue Book Questions (BBQ's), Reading Assignments and Lab Activities, you should also be able to answer all of the following questions for the next exam. This review sheet is provided to help you learn how to organize your studying for the class, **it is not meant to be an exhaustive list of all possible questions** on the test. I highly recommend using the activities and practice quizzes in your textbook as well as the videos and other resources on my webpage: http://zanniedallarasciencepage.weebly.com/

Division of Content: 40-ish% new content, listed below, 60% cumulative
Topics: Homeostasis, and Body Systems: Digestive, Circulatory, and Immune
Chapters: 16-17
Blue Book Questions: Address 4 Misconception, BBQ22-25 & Activity#6-8

Lecture #23: Homeostasis and Circulatory System

Big Idea:
1. Homeostasis is one of the 7 characteristics of life, why is it so important that every living thing on the planet exhibits homeostasis.
2. Connect the structure of organs and anatomy to their function.
3. Connect the topics of cell respiration (making energy) to the circulatory system (moving O_2 and CO_2)

4. What is homeostasis?
5. How is it maintained?
6. Explain how a negative feedback loop works, give an example
7. Including purpose, STRUCTURE and FUNCTION of arteries, capillaries, veins, chambers and valves of the heart.
8. Understand and be able to explain the various components of the blood, and the function of plasma, red blood cells, white blood cells and platelets. Particular attention to the pros and cons of RBC's.
9. Be able to explain what makes the heart contract, and the role played by the heart valves in the process. Know the position and function of the SA and AV nodes.
10. Be able to explain the pathway of blood as it flows into the heart, goes to the lungs, returns to the heart and then goes out to the tissues of the body. Be able to name the structures/organs through which the blood flows, including heart chambers, valves and vessels. Be sure you can explain if these structures are on the right or left side of the heart.

Lecture #24: Digestive System

Big Idea:
1. Connect the topic of macromolecules needed in all living organisms to the steps of the digestive system.
2. Why do we need to eat and why so much more often than a cold blooded animal?

3. Be able to trace the steps of a bite of food through your digestive system.
4. Understand the purpose and function of the digestive system.
5. Know what "digestion" means and how it is different than absorption.
6. Know the names and functions of the various organs found in the digestive system. Be able to explain the role of surface area in digestion, and what organs show specific adaptations for lots of surface area. Know the names and functions of the enzymes and hormones released during the digestive process. Know which organ produces each enzyme or hormone, and where in the digestive system these molecules actually function. Know where in the digestive system the various components of food are broken down and where they are absorbed.
7. Understand where and how ulcers and heart burn occur and why.
8. Be able to explain how a complete meal is broken down in the digestive system—proteins, carbohydrates, and fats. Where are each of these molecules are broken down, what hormones/enzymes are involved, what are the breakdown products and where are the products absorbed.

Lecture #25: Immune System

Big Idea:
1. Connect the topic of mitosis to the immune response.
2. How does the flu vaccine protect people and protect more people than even get the vaccine?

9. Be able to walk through the steps of the immune response and how it varies in the following scenarios:
    a. Pathogen: Bacteria
    b. Pathogen: Virus
    c. This is the **first time** you have been exposed to this exact pathogen.
    d. This is the **second time** you have been exposed to this exact pathogen.
10. Understand and be able to explain the purpose, structure and function of the immune system.
11. What are antibodies and antigen
    a. How do they recognize each other?
12. Know the non-specific immune responses, including the barriers, as well as the internal responses. Be sure to understand and be able to explain the inflammatory and fever response.
13. Understand and be able to explain the specific immune response, including the (step 3) the cell mediated response. Understand the primary and secondary response within each of these.
    a. Be able to name and explain the functions of the different types of cells involved, including B cells, T cells, helper T cells, killer T cells and suppressor T Cells.
    b. Know where these cells are produced and where they mature.
14. Understand and be able to explain how vaccines work and what an autoimmune disease is.

BIOLOGY 11 - REVIEW FOR EXAM 4 – CUMULATIVE REVIEW

AKA Big Themes: Tie it all together:

****How** does SA improve the function?

Cells	Molecules	Ecology	Plants	Animals

How does the structure of a _____ fit its function?

DNA	**Enzyme**	**Water**	**Root Hair**	**Animal Blood Vessel**
Structure:	Structure:	Structure:	Structure:	Structure:
Function:	Function:	Function:	Function:	Function:
How does structure fit function:	How does structure fit function:	How does structure fit function:	How does structure fit function:	How does structure fit function: