

ZOOL 10 - REVIEW FOR EXAM 1

INTRODUCTION (Ch. 1)

1. List the steps of the scientific method in order, and apply them to medical and everyday investigations.
2. Distinguish hypothesis, theory, law; and biology, microbiology, botany, zoology, anatomy, physiology.
3. Describe the characteristics shared by all forms of life; and list the levels of organization in order.
4. Describe the vitalistic, mechanistic, and modern views of life, and the different views of animal rights.
5. Define anthropomorphism, and describe several examples and its limitations.

CHEMISTRY (Ch. 1 & appendix)

1. Describe the internal structure of an atom, and the different properties of protons, neutrons, and electrons.
2. Calculate the atomic number, atomic mass, no. of neutrons, and charge of an atom from the periodic table.
3. Distinguish the following terms: element, isotope, molecule, metabolism, ion, anion, cation, salt, acid, base or alkaline, hydroxide ion, buffer, organic molecule, inorganic molecule, polymer, and enzyme.
4. Identify the 6 elements most important to life; and interpret the measurements in the pH scale.
5. Describe the features of a chemical bond, and the difference among ionic, covalent, and hydrogen bonds.
6. Provide an example of synthesis and hydrolysis reactions, especially the role of water in each.
7. Identify the 4 groups of organic molecules, and describe the structure, function, energy, & examples of each.

CELLS (Ch. 2)

1. Discuss the cell theory and why cells must be small (specialization and surface area-to-volume ratio).
2. Identify the location and function of the following in the cell: cell membrane, cell wall, cytoplasm, cilia, flagellum, nucleus, nuclear membrane, nucleoplasm, nucleolus, chromosome, mitochondria, chloroplast, ribosome, endoplasmic reticulum, Golgi body, vesicle, vacuole, lysosome, and centriole.
3. Describe the fluid mosaic model for cell and nuclear membranes, and how it influences cell permeability.
4. Differentiate diffusion, facilitated diffusion, active transport, osmosis, endocytosis, and exocytosis.
5. Identify the processes comprising the cell cycle, and the differences between mitosis and meiosis.
6. Identify the 5 kingdoms of life, examples of each, and their important cellular and nutritional differences.

EXAM 1

ECOLOGY (Ch. 5)

1. Distinguish ecology, biosphere, biome, ecosystem, ecotone, biotic & abiotic factors, producer, autotroph, heterotroph, consumer, herbivore, I° & II° carnivores, decomposer, niche, countershading, and mimicry.
2. Recognize the key differences among various biomes (esp. temperature, moisture/water, and vegetation).
3. Identify the different zoogeographical realms; and the factors effecting terrestrial & aquatic ecosystems.
4. Contrast the nature of a biogeochemical cycle and an energy flow in the biosphere.
5. Diagram examples of a food chain, food web, & food pyramid, and identify their different trophic levels.
6. Identify the various symbiotic relationships, their + - 0 notation, and two different example of each.
7. Describe the changes during succession; and discuss the role of the competitive exclusion during evolution.
8. Discuss how predation and competition may benefit a prey population; and how they can be avoided.
9. Compare the population growth curves for opportunistic and equilibrium species, and examples of each.
10. Describe factors accelerating extinction, and the difference between threatened and endangered status.
11. Discuss how the ecology of hunters and gatherers differs from industrialized high-energy cultures.

ORGAN SYSTEMS (Ch. 6-12)

1. Identify the 11 organ systems found in most animals, their overall function, and their major organs.
2. Describe the diversity in organ systems found among different vertebrate classes, especially the variety of integumentary protection, skeletal composition, sense organs, and temperature regulation.
3. Recognize the location and role of the following structures among humans: epidermis, dermis, true bone, cartilage, axial skeleton, appendicular skeleton, pectoral girdle, pelvic girdle, skeletal muscle, smooth muscle, cardiac muscle, neuron, cerebrum, cerebellum, brain stem, endocrine gland, heart, artery, capillary, vein, lymph node, lymph vessel, lung, stomach, small intestine, large intestine, and kidney.

 DON'T FORGET TO BRING A NO. 2 PENCIL 