

ZOOL 10 - REVIEW FOR EXAM 2

EVOLUTION (Ch. 4)

1. Summarize Lamarck's explanation for evolution and the arguments in Darwin's theory of natural selection.
2. Identify the ultimate criteria for fitness in evolution; and discuss why there are no moral lessons in nature.
3. Cite various sources of evidence for evolution (incl. homology, vestigial structures, and plate tectonics).
4. Discuss the role of variability in evolution, how it is promoted genetically, and its geographical patterns.
5. Describe how speciation usually proceeds, and how it is maintained by pre- and post-mating mechanisms.
6. Distinguish these patterns in evolution: adaptive radiation, divergent, convergent, coevolution, & sexual.
7. Describe the origin of life as suggested by chemical evolution; and list the major events in human evolution.

BEHAVIOR (Ch. 13)

1. Identify ethology, fixed action pattern, reflex, imprinting, conditioning, habituation, and sociobiology.
2. Describe the different modes of kinesis and taxis, and the various environmental cues used in navigation.
3. Describe differences between instinctive & learned behavior; and discuss the nature-nurture controversy.
4. Discuss the benefits and disadvantages of sociality; and the various modes of communication & displays.
5. Discuss how the different mating patterns are related to sexual selection and sexual dimorphism.
6. Discuss the similarities between a dominance hierarchy & territoriality, and the basis for their evolution.
7. Describe the evolution of insect societies in relation to inclusive fitness, kin selection, and selfish genes.

REPRODUCTION (Ch. 14)

1. Describe key differences between mitosis and meiosis, esp. in their function and the number of chromosomes.
2. Compare the advantages and disadvantages of sexual vs asexual reproduction, dioecious vs monocious, genetic vs environmental sex determination, external vs internal fertilization, panmixia, copulation, parthenogenesis, hermaphroditism, and artificial insemination vs natural service.
3. Identify fission, budding, cloaca, testes, penis, urogenital duct, corpus tissue, baculum, spermatozoa, semen, testosterone, estrogen, progesterone, ovaries, endometrium, uterus, vagina, clitoris, and ovum/ova.
4. Describe the major events in embryonic development, incl. the zygote, cleavage, morula, blastula, gastrula, archenteron, blastopore, differentiation, germ layers, ectoderm, mesoderm, endoderm, and organogenesis.

EXAM 2

CLASSIFICATION (Ch. 15)

1. Identify the 3 tasks in classification, and the only taxonomic category with any biological significance.
2. Define the “biological species”, and compare its strengths and weaknesses with the “typological species”.
3. Describe the limitations of common names, and the advantages of the binomial Latin epithets.
4. List all the major taxonomic categories in order, and provide the complete classification for humans.
5. Compare the phylogenetic tree vs shrub vs cladogram, and homologous vs analogous structures in taxonomy.
6. Construct a dichotomous key for identifying common animals; and provide examples from the major phyla.
7. Compare the differences and advantages of radial vs bilateral symmetry (including cephalization).
8. Differentiate the different levels of complexity, body shapes, body cavities, and patterns of development.

PROTOZOA (Ch. 16)

1. Identify the cellular structure of protozoans; and identify and describe the 5 major groups of protozoans.
2. Describe the different modes of locomotion, nutrition, and reproduction exhibited by various protozoans.
3. Describe how protozoans accomplish the other physiological functions despite being unicellular.

PORIFERA (Ch. 17)

1. Describe the similarities and differences between sponges and the other animal phyla.
2. Describe the properties of sponge cells, and the organization and evolution of the canal systems in sponges.
3. Identify the 3 major classes of sponges, and describe their differences in canal systems & skeletal material.
4. Describe how sponges feed, and how they reproduce sexually and asexually.

 DON'T FORGET TO REVIEW ALL HANDOUTS, AND TO BRING A NO. 2 PENCIL 