STUDY GUIDE:Homeostasis and Internal Regulation

KEY TERMS

homeostasis
negative feedback
positive feedback
interstitial(=extracellular) fluid
intracellular fluid
Nitrogenous-waste compounds
ammonia
urea
uric acid
excretion
elimination
osmoconformers
osmoregulators
contractile vacuole
flame cell system
nephridia
Malpighian tubules
Parts of nephron
Bowman's capsule
glomerulus
proximal convoluted tubule
distal convoluted tubule
loop of Henle
collecting tubule
glomerular filtration
tubular reabsorption
tubular secretion
ureter
cloaca
urethra
urinary bladder
glomerulus
tubular excretion
thermoregulation
ectothermic(=poikilothermic)
endothermic(=homeothermic)
behavioral thermoregulation
physiological thermoregulation
vasodilation
rete mirable
torpor
hibernation
aestivation

QUESTIONS

1. List three main nitrogenous waste products; compare their toxicity and the amount of water that must be expelled in order to excrete each one.
2. What organisms have salt glands? How do they work?
3. For each of the following organisms, specify the type of excretory mechanism possessed: Paramecium, planaria, earthworm, mammal, insect.
4. Draw a diagram of nephron, labeling the following: glomerulus, Bowman's capsule, proximal convoluted tubule, descending limb of the loop of Henle, ascending limb of the loop of Henle, distal convoluted tubule, collecting tubule.
5. Discuss in some detail the process of urine formation in man, explaining how the nephron functions.
6. Summarize the role played by your kidneys in maintaining homeostasis.
7. Describe a model for the sodium-potassium pump and explain how such a pump might work in the cells of the gills of a freshwater fish.
8. State the principle homeostasis and explain why the body's health and survival depend upon the maintenance of homeostasis.
9. Outline the process of temperature regulation in endothermic animals. What are the four general categories of temperature regulation?
10. How does the mammalian thermostat work? Where is this thermostat located?
11. Explain the principle of countercurrent heat exchangers.
12. Are their any invertebrates that regulate their body temperature? If so who are they?
13. Explain the difference between hibernation, torpor and aestivation?