Internet Assignment: Osmoregulation & Excretion

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_

Got to Basic Renal Processes by following the link below and click throuogh the animation

<http://highered.mcgraw-hill.com/sites/9834092339/student_view0/chapter50/basic_renal_processes.html>

1. Blood moves from artery to \_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_
2. Sketch the simplified Nephrons labeling the afferent arteriole, glomerulus, efferent arteriole, peritubular capillaries, renal vein, bowmans capsule, proximal tubule, loop of henle, distal tubule, and collecting duct (if you scroll the mouse over each of the words it will ligh up the appropriate part)
3. Click the Next arrow twice. What process occurs at the glomerulus?
4. What process occurs at the peritubular capillaries?

*Answer the quiz questions at the bottom*

**Next go to the following website and read the introduction.**

<http://www.sumanasinc.com/webcontent/animations/content/kidney.html>

Answer the following questions:

1. Define homeostasis:
2. Living organisms must maintain a balance of \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_ \_\_\_\_\_
3. What excretory organ does blood typically pass through?
4. What 2 major roles do the kidneys function in

Next, watch the narrated animation

1. List the 4 organs depicted in the animation
2. What is the role of the ureter?
3. What are the inner and outer parts of the kidney called?
   1. Inner:
   2. Outer:
4. What medullary tissue does the ureter branch off into?
5. What is the functional unit of the kidney called, and how many does each human kidney have?
6. What are the 2 components of these functional units?
7. List the direction of blood flow through the kidneys
8. What is the role of blood pressure in the cortex?
9. Is the proximal convoluted tubule part of the vascular or tubular coponents of the kidney, and where is it located
10. Where does the proximal convoluted tubule carry the filtrate to
11. The loop of Henle is divided into 2 limbs, the ascending limb and the descending limb. Which limb carries the filtrate from the cortex to the medulla, and which carries it back from the medulla to the cortex?
12. Where does the filtrate eventually empty into
13. Which part id responsible for most of the reabsorption of water & solutes from the glomerular filtrate?
14. Is this carried out by active or passive transport? Explain.
15. Does the water and solutes that are reabsorbed enter a vein or capillary leaving the kidney?
16. Compare the composition and osmolarity of the filtrate as it enters the loop of henle to that of the blood plasma
17. The ability of the kidney to produce hypertonic urine is due to what?
18. Identify what each limb of the loop of Henle & the collecting duct is permeable to, and if it moves those things actively or passively, and in or out of the tubule.
    1. Descending limb:
    2. Ascending loop:
    3. Collecting duct:
19. What is meant by counter current multiplier? (see bullet # 3 in the conclusion section…)
20. What role do concentration gradients and selective permeability play in making urine hypertonic