The Urinary System: Late Filtrate Processing

1. Name the two types of cells in the cortical collecting ducts and describe their function.
   a. 
   b. 

2. a. Aldosterone is stimulated by an increase or decrease in what ions?
   1. ________  2. ________
   b. What does aldosterone increase in the basolateral membrane?

3. What does antidiuretic hormone (ADH) increase in the luminal membrane?

4. In dehydration and overhydration, what would be the levels of:
   a. ADH? _____ dehydration _____ overhydration (↑ or ↓)
   b. Aldosterone? _____ dehydration _____ overhydration (↑ or ↓)

5. Describe what moves out of the tubule and what the osmolartity would be in the following nephron segments:
   a. Proximal tubule _____ moves out _____ mOsm
   b. Descending limb _____ moves out _____ mOsm
   c. Ascending limb _____ moves out _____ mOsm
   d. Late distal tubule _____ moves out _____ mOsm
6. a. By the medullary collecting duct, only ____% of the filtrate remains.

   b. Under the following conditions, report the levels of ADH and subsequent urine osmolarity and flow rate:

<table>
<thead>
<tr>
<th>Hydration</th>
<th>ADH</th>
<th>Urine Osmolarity</th>
<th>Urine Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td></td>
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<td></td>
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<tr>
<td>Dehydration</td>
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<tr>
<td>Overhydration</td>
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</tbody>
</table>

7. a. Urine with a “high normal osmolarity” and containing RBC’s and protein
       would indicate: ______________

   b. Urine with a very high osmolariy and glucose would indicate:

      ______________

   c. Urine with a very low osmolarity and high volume would indicate:

      ______________

8. An increase in plasma potassium levels would lead to what changes in the following? (↑ or ↓)

   a. _____ Aldosterone levels
   b. _____ Potassium excretion
   c. _____ Sodium excretion
   d. _____ Interstitial osmolarity
   e. _____ Urine volume