The Cardiovascular System: Autoregulation and Capillary Dynamics

1. a. What regulates the flow of blood into true capillaries? _____

   b. If all sphincters are closed, blood is _____ to the venules through

   _____ capillaries.

2. Use arrows to show whether high or low levels of the following would cause the feeder arterioles to dilate and the sphincters to relax:

   a. O_2 _____ c. pH _____

   b. CO_2 _____ d. nutrients _____

3. Physical factors also act as regulatory stimuli. How would the following affect arterioles?

   a. Decreased blood pressure _____

   b. Increased blood pressure _____

4. Name three structural characteristics of capillaries which allow for passage of materials out of the capillaries.

   a.

   b.

   c.

5. a. Diffusion accounts for the passage of _____.

   b. Non-lipid soluble molecules move by _____.

   c. Water-soluble solutes, such as amino acids and sugars, move through

   _____.

6. Bulk fluid flows cause _____ at the arterial end and

   _____ at the venous end of the capillary.

7. a. In a capillary, what is equivalent to hydrostatic pressure?

b. Why is hydrostatic pressure low in the interstitial fluid?

c. Net hydrostatic pressure tends to move fluid _____ the capillary.

8. a. Osmotic (or Colloid Osmotic) pressure in the capillaries is _____ compared to the interstitium.

b. Net osmotic pressure tends to move fluid _____ the capillaries.

9. Given a net hydrostatic pressure of 34 mmHg and a net osmotic pressure

of 22 mmHg, the force favoring filtration would equal _____ mmHg.

10. Indicate which of the following which move through the capillary walls by diffusion and which move through fenestrations and/or clefts:

a. Butter:

b. Fish:

c. Cola:

d. Potatoes: