The Cardiovascular System: Anatomy Review: Blood Vessel Structure and Function

1. Name the three layers or tunics of the blood vessel wall and what they are composed of.

Location	Tunic name	Composed of
Innermost		
Middle		
Outer		

2. In the following list of characteristics, put "A" for artery, "C" for capillary and "V" for vein:

___ contain the lowest pressure ___ contain the highest pressure

___ has thick tunica media ___ thin tunica media

___ smallest of the blood vessels ___ carries blood away from heart

___ largest lumen—blood reservoir ___ has only one tunic (intima)

___ carries blood towards the heart ___ site of exchange of nutrients

3. Name the three groups of arteries:

1. _____

2. _____

3. _____

4. _____ arteries have a thick tunica media with the greatest amount of elastin. They also experience the greatest pressure and the widest variation in pressure. The best example is the _____.

5. Compared to the arteries above, the <u>muscular arteries</u> have more smooth muscle but less _____. They deliver blood to specific organs. The _____ artery delivers blood to the kidney and would be an example of this type of artery.

Small changes in the diameter of these blood vessels greatly influence blood flow and blood _____. Stimulation of vasomotor fibers would cause (vasoconstriction or vasodilation) of the blood vessels.

6. The smallest arteries are called _____. The steepest drop in blood pressure occurs in these vessels, thus they offer the greatest _____ to flow.

An increase in blood flow through a feeder arteriole will (increase or decrease) blood flow through the capillary.

7. Capillaries:

The _____ is a short vessel that directly connects the arteriole and venule. When blood flows through this vessel, there is no exchange of materials.

The _____ controls blood flow into the true capillaries. Exchange of materials takes place from these capillaries.

Compared to blood pressure in the arteries, blood pressure is (high or low) in the capillaries.

8. Venules:

The smallest venules are formed when capillaries unite. They consist mainly of _____ around which a few fibroblasts congregate. Blood flow continues to (increase or decrease) in the venules.

9. Veins:

Veins have three distinct tunics, with the tunica _____ being the heaviest. Veins have _____ walls and _____ lumens than arteries.

10. Since pressure is lower in the veins, special adaptations are necessary to return blood to the heart. These three structural adaptations are:

1. _____. Here, _____ prevent backflow as blood travels toward the heart.

2. _____. Here, contracting _____ muscles press against veins forcing blood through # 1 above.

3. _____. During inspiration, pressure (increases or decreases) in the thoracic cavity and (increases or decreases) in the abdominal cavity. This results in an upward “sucking” effect that pulls blood towards the heart.