The Circulatory System

1. Explain why large, multicellular organisms require circulatory systems.

2. No cell is further than two cells away from a blood vessel. This allows nutrients to pass to cells via the process of _____.

3. Name six functions of the circulatory system.

4. Capillaries connect arteries to _____.

5. An artery always carries blood _____ the heart.

6. An _____ is due to the weakening of the wall of an _____. This leads to a bulge in the wall which easily ruptures.

7. Explain how you blush or pale depending on your situation.

8. Hardening of the arteries is also known as _____. This is when _____ droplets mix with _____ and other minerals to form _____ which is deposited on the artery wall. _____ form around this, blocking off blood flow.

9. Capillaries are the site of _____ and _____ exchange in tissue. (Because they are so thin, _____ occurs easily.)

10. Venules and veins carry blood _____ the heart.

11. Blood pressure in the veins and venules is much _____ than arteries.

12. What two factors work together to push blood against gravity back up to the heart?

13. If blood pools for a long period of time in a vein, the _____ in the veins can be damaged, leading to a condition known as _____ _____. Name two factors that can lead to this condition.

14. The average heartbeat is _____ beats per minute (BPM).

15. Diastole is the stage of heart contraction when the heart _____. During this stage, the _____ valves slam shut, producing the _____ sound of the heartbeat.

16. Systole is the stage of heart contraction when the _____. During this stage, the _____ valves slam shut, producing the _____ sound of the heartbeat.

17. Differentiate between cardiac output, stroke volume and heart rate.

18. A _____ is used to measure blood pressure.

19. Blood pressure readings include two numbers. Indicate what the average numbers are, and what they represent.

20. Why is low blood pressure a problem? High blood pressure?

21. Describe the causes and symptoms of anemia.

22. Describe how blood clotting takes place.

23. Antigens are _____ on the surface of _____ cells. Antibodies are _____ that attach to antigens and cause the blood to _____.

24. A person with type AB blood has _____ antigens. They are referred to as the universal _____

25. Match the parts of the immune system with the description on the right:

_____ Identify the antigens present on an invading cell

_____ Y-shaped proteins that attach to antigens and immobilize invaders

_____ Slows down immune reactions after the invader has been destroyed

_____ Proteins located on the surface of a cell membrane

_____ Retain information about the invader to speed up future reactions

_____ Puncture and rupture the cell membranes of intruders, and digesting infected cells, also destroy mutated cells.

_____ White blood cells that produce antibodies.

_____ Produced in the bone marrow and stored in the thymus gland, seek out intruders and signal the attack

_____ White blood cells that engulf and digest invaders

_____ White blood cells that produce antibodies.

_____ White blood cells that engulf and digest invaders

_____Red Blood Cells

_____Fight off infections through diapedesis

_____Cells that do not contain a nucleus

_____Mostly water, but also contains proteins, glucose, nutrients, and cellular waste products.

_____Initiate blood clotting reactions

_____Useful in blood clotting

_____Biconcave discs (which gives a better surface area for oxygen exchange)

_____Iron containing pigment that holds oxygen