LYMPHATIC SYSTEM

1. What is the function of the lymphatic vessels? _________________________________

2. What moves the lymph through the vessels? _________________________________

3. What is the source of lymph? _______________ 
   What happens to the lymph? _________________________________

4. List the 4 components of the lymphatic system. _________________________________
   ______________________________________________________________________

5. What is the starting point of the lymphatic system? _____________________________
   What causes fluid to enter the lymphatic capillaries? _____________________________

6. Lymph from the lower trunk drains into the ___________________________.
   One-fourth of the body’s lymph drains into the ___________________________.
   The other three-fourths drains into the ___________________________.
   Which circulatory system blood vessels receive lymph from these ducts? __________

CELLS OF THE LYMPHATIC AND IMMUNE SYSTEMS

7. Name the types of white blood cells found in lymphatic tissue. ______________________
   Where do B cells mature? _______________ 
   Where do T cells mature? _______________ 
   What type of stem cell produces NK cells?_____________________

8. B cells are responsible for immunity in fluid or ______________ immunity.
   This is also called _________________________ immunity.

9. T cells are responsible for immunity in ______________.
   This is also called _________________________ immunity.

10. List the functions of the lymphatic system. _________________________________

LYMPHATIC TISSUES

11. _________________________________ lines the digestive tract below epithelium.

12. _________________________________ are areas of lymphatic tissue found in the oral cavity and pharynx.

LYMPHATIC ORGANS

13. Name the lymphatic organs.________________________________

14. Lymph flows in a one-way route through lymph nodes. It enters through ________
   lymphatic vessels and exits through __________________________ lymphatic vessels at the hilus.
   What is the function of a lymph node?_______________________

15. Fibrous partitions formed by capsule of lymph nodes are called__________________ .
16. Name the types of cells found in various sections of the lymph node:
   Subcapsular area_____________________
   Outer cortex________________________
   Deep cortex_________________________
   Medulla_____________________________

17. Define antigenic presentation.____________________________________________________

   What is the purpose of this process?______________________________________________

18. Name the lymphatic organ that is large in babies and decreases with age.___________

   This process in which it becomes more fibrous is called.__________________________

19. Reticular epithelial cells in the thymus form a____________________________ and secrete
   thymic hormones:__________________________.

20. What is the function of the thymic hormones?___________________________________

21. Where are Hassall’s corpuscles found?______________

22. Name the lymphoid organ that has the largest amount of lymphoid tissue in the body._____ 

23. List the functions of the spleen.________________________________________________

24. The red pulp contains _______________________________________________________
   The white pulp contains_______________________________________________________

DISEASES /DISORDERS OF LYMPHATIC SYSTEM

25. ______________________ is another term for swollen lymph nodes.

26. ____________________________ is severe swelling of the extremities due to nematodes
   that destroy the openings into lymphatic capillaries.

CHARACTERISTICS OF THE IMMUNE SYSTEM

27. What are the two functions of the immune system?_______________________________

   Explain the difference between:

   Nonspecific defense _____________________________________________________________

   Specific defense _______________________________________________________________

28. B and T cells belong to the______________________________ defense mechanism(s).

   NK cells belong to the______________________________ defense mechanism(s).

   NK cells recognize ____________ on surface of cells that do not belong to your body.
1. carries lymph
2. muscle and respiratory pumps and valves
3. blood; returned to circulatory system
4. lymph, lymphatic vessels, lymphoid tissues and organs, lymphocytes and small phagocytes
5. lymphatic capillaries near circulatory capillary beds; increased interstitial fluid pressure
6. cisterna chyli; right lymphatic duct; thoracic duct; R and L subclavian veins
7. T cells, B cells, NK cells; bone marrow; thymus; lymphoid
8. humoral; antibody mediated
9. tissues; cell mediated
10. produces, maintains and distributes T cells, B cells and NK cells.
11. GALT - gut associated lymphatic tissue (AKA: MALT - mucosa associated lymphatic tissue)
12. tonsils
13. lymph nodes; thymus; spleen
14. afferent; efferent; filters lymph
15. trabeculae
16. subcapsular - macrophages; outer cortex - B cells; deep cortex - T cells; medulla - B cells and plasma cells
17. antigens (abnormal body cells or invaders with abnormal proteins) are presented to NK cells and monocytes or bind to receptors on dendritic cells; activates immune response
18. thymus; involution
19. blood-thymus barrier; thymosins and thymopoietin
20. stimulate stem cell division and T cell differentiation
21. medulla
22. spleen
23. remove old RBC; stores iron from recycled RBC; starts immune response of B and T cells
24. red - RBC and macrophages; white - lymphocytes, macrophages, dendritic cells
25. lymphadenopathy
26. elephantiasis
27. specific and nonspecific defense;
   nonspecific - defends against any invader;
   specific - defends against particular pathogens
28. B and T - specific; NK - both nonspecific and specific; proteins