

## 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 the 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