The Immune System: Anatomy Review

1. Name the two major anatomical parts of the immune system:

   • _____

   • _____

2. List four lymphoid organs and tissues that are part of the immune system.

   • _____

   • _____

   • _____

   • _____

3. Primary lymphoid organs, where B and T cells originate and mature, are the bone marrow and thymus.

   Fill in the following:

   Both B and T cells originate from _____.

   The B cells mature in the _____.

   The T cells mature in the _____.

   (Hint: This is how they came to be called B and T cells.)

4. Secondary lymphoid organs, where lymphocytes become activated, include the following structures:

   • _____

   • _____

   • _____

   • _____

   • _____

5. The lymphatic system consists of the following three structures:

   • _____

   • _____

   • _____

6. The lymphatic vessels collect excess interstitial fluid that leaves the cardiovascular capillaries and returns it to the cardiovascular system.

   • How many liters per day are collected?___ L/day

   • To which organ is lymph returned? _____

   • Complete the pathway for lymph to return to the cardiovascular system: lymph capillaries → lymph _____ → lymph _____ → cardiovascular system.

7. If lymphatic vessels do not function properly, there will be a buildup of fluid in the tissues. This condition is known as _____.

8. The lymphatic capillaries have _____ valves to collect the excess interstitial fluid and any leaked proteins.

9. The lymph is filtered through the _____, where antigens and pathogens are removed and the immune system can be activated. What types of lymphocytes remove these antigens and pathogens?

   _____

10. Special lymphatic capillaries in the intestines, called _____, transport absorbed _____ from the intestines into the blood.

11. Name three areas of the body where lymph nodes are clustered:

   • _____

   • _____

   • _____

12. Name two functions of the lymph nodes:

   • _____

   • _____

13. While _____ lymphatic vessels carry lymph from the tissues to the lymph nodes, _____ vessels carry cleansed lymph away from the lymph nodes.

14. Name these portions of the lymph node:

   • _____Connective tissue surrounding the entire lymph node

- _____Shallow indentation to which the efferent lym
- _____Bundles of collagen fibers that divide the node into compartments
- _____Collections of lymphocytes called follicles are found here

15. ___ cells are found in the germinal centers of the lymphoid follicles, and ___ cells wander through the deep _____, searching dendritic cells for their special antigen.
16. The _____ cleanses the blood like the lymph nodes cleanse the lymph.
17. Functions of the spleen include:

    • Removes _____

    • Stores _____

    • Site for activation of the _____

18. Collections of secondary lymphoid tissue (called _____ for short) are distributed throughout the mucosal surfaces of the digestive, respiratory, and genitourinary system. Aside from the diffuse cells in respiratory and other mucosa, this includes the following specific structures:

    • _____ (protection of oral and nasal cavities)

    • _____ (first part of the large intestine)

    • _____ (distal portion of the small intestine)

19. Identify the secondary lymphoid organs by their major function(s):

    - _____Site of maturation of lymphocytes into T cells
    - _____Traps bacteria and other antigens in the small intestine
    - _____Traps bacteria or other pathogens entering the throat
    - _____Two of the members of MALT (mucosa-associated lymphatic tissue)

20. Identify these tonsils by their locations:

    - _____Base of the tongue
    - _____Embedded in the wall of the nasopharynx
    - _____Posterior end of the oral cavity

21. The _____, a primary lymphoid organ, is the site for differentiation of lymphocytes into mature T cells. What happens to this organ as we age?

_____