**Study questions: THE IMMUNE SYSTEM**

1. What is meant by “non-specific defense”?

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2. List four components of the FIRST LINE of non-specific external defense mechanisms with examples:

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3. List three components of the SECOND LINE of non-specific defense mechanisms with examples:

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4a. What is the role of the lymphatic system in maintaining homeostasis in vertebrates?

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 b. How does the lymphatic system aid in immunity?

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5. What is phagocytosis and how does it help prevent disease? Is this specific or non-specific?

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6. Describe how Natural Killer cells and complement proteins are nonspecific defenses. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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7. Outline the significant steps that occur during an inflammatory response?

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8. What is meant by “specific defense”?

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9. What is an antigen?

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10. Identify several differences between the lymphocytes.

 a. B Lymphocytes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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 b. T Lymphocytes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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11. What is the general structure of an antibody? (Draw)

 b. to what class of molecules do they belong? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 c. Why are they so adaptable to different pathogens?

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12. Why is secondary response quicker and more robust than primary response? Draw graph and explain.

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13. Define **active** immunity and give examples.

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14. Define **passive** immunity and give examples.

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15. What is the purpose of a vaccination?

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16. What are some different types of vaccines?

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17. What is the role of cytotoxic (Killer) T cells and describe their mechanism of action?

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18. Explain the difference between **cell-mediated and humoral immunities.**

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19. What happens when you have an allergy?

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