BIOS 328 – IMMUNOLOGY
Quiz #7 – Due April 15, 2003

NAME:_____

PART I: Provide a well-conceived, *one-page* overview of hypersensitivity. (Remember: This effort is meant to be effective preparation for *you* for the final exam.)

HYPERSENSITIVE REACTIONS

I. Gel and Coombs Classification
II. IgE-Mediated (Type I) Hypersensitivity
    A. Components of Type I Reactions
        1. Allergens
        2. Reaginic Antibody (IgE)
        3. Mast Cells and Basophils
        4. IgE-Binding Fc Receptors
            a. High Affinity Receptor
            b. Low Affinity Receptor
    B. Mechanism of IgE-Mediated Degranulation
        1. Receptor Crosslinkage
        2. Intracellular Events Leading to Mast-Cell Degranulation
    C. Mediators of Type I Reactions
        1. Histamine
        2. Leukotrienes and Prostoglandins
        3. Cytokines
    D. Consequences of Type I Reactions
        1. Systemic Anaphylaxis
        2. Localized Anaphylaxis (Atopy)
            a. Allergic Rhinitis
            b. Asthma
            c. Food Allergies
            d. Atopic Dermatitis
        3. Late-Phase Reaction
    E. Regulation of Type I Response
    F. Detection of Type I Hypersensitivity
    G. Therapy for Type I Hypersensitivity
II. Antibody-Mediated Cytotoxic (Type II) Hypersensitivity
    A. Transfusion Reactions
    B. Hemolytic Disease of the Newborn
    C. Drug-Induced Hemolytic Anemia
III. Immune Complex-Mediated (Type III) Hypersensitivity
    A. Localized Type III Reactions
    B. Generalized Type III Reactions
IV. T-DTH-Mediated (Type IV) Hypersensitivity

PART II: Provide a well-conceived, *one-page* overview of the immune response to infectious organisms.

THE IMMUNE RESPONSE TO INFECTIOUS DISEASE

I. Viral Infections
   - A. Viral Neutralization by Humoral Antibody
   - B. Cell-Mediated Antiviral Mechanisms
   - C. Viral Evasion of Host-Defense Mechanisms
   - D. Influenza
     1. Properties of Influenza Virus
     2. Host Response to Influenza Infection

II. Bacterial Infections
   - A. Immune Response to Extracellular and Intracellular Bacteria
   - B. Bacterial Evasion of Host Defense Mechanisms
   - C. Contribution of the Immune Response to Bacterial Pathogenesis
   - D. Diphtheria (*Corynebacterium diphtheriae*)
   - E. Tuberculosis (*Mycobacterium tuberculosis*)
   - F. Lyme Disease (*Borrelia burgdoferi*)

III. Protozoan Diseases
   - A. Malaria (*Plasmodium* Species)
     1. *Plasmodium* Life Cycle and Pathogenesis of Malaria
     2. Host Response to *Plasmodium* Infection
     3. Design of Malaria Vaccines
   - B. African Sleeping Sickness (*Trypanosoma* Species)
   - C. Leishmaniasis

IV. Diseases Caused by Parasitic Worms (*Helminths*)

V. Emerging Infectious Diseases