Lecture Exam 4 Objectives

Chapter 14
Define the following terms:
- pathology
- etiology
- pathogenesis
- infection
- host
- disease
- normal flora (NF)
- infectious
- immunocompromised
- predisposing factors

Define the following symbiotic relationships and give an example of each:
- commensalism
- mutualism
- parasitism

List Koch's postulates, and their significance to epidemiology. Note exceptions to Koch's postulates.

Describe what a vector is, and give three examples of vectors.

Define the following types of diseases:
- communicable
- noncommunicable
- acute
- chronic
- subacute
- endemic
- epidemic
- pandemic
- secondary infection
- epidemiology

Describe the following terms:
- bacteremia
- septicemia
- primary infection
- secondary infection
- epidemiology

Describe three (3) Zoonoses that can be transmitted to humans as see on Table 14-2.

Describe how spread of infectious disease may occur. Note the following related terms:
- reservoir - living and nonliving
- transmission - contact, fomite, common vehicle, airborne, vector

Define what a portal of exit means, and how this is important in transmission of diseases.

List three portals of entry, and an agent of disease for each.

Describe how nosocomial infections are obtained (note contributing factors).

List and briefly describe the periods of disease:
- incubation
- prodromal
- illness
- decline
- convalescence

Describe the purpose of the CDC and the MMWR.

Chapter 15
Distinguish between pathogenicity and virulence.

Describe what is meant by invasiveness, and the mechanisms and factors that increase invasiveness.

List how pathogens may cause damage to the host.

List several common portals of entry. Note what preferred portal of entry indicates.

Differentiate between an Endotoxin and an Exotoxin as far as source, heat stability, antigenicity, and type of molecule (protein, or polysaccharide/lipid). Give several examples.

Define ID$_{50}$ and LD$_{50}$.

Describe any pathogenic properties of nonbacterial microorganisms.

Chapter 16
Define the following terms:
- resistance
- susceptibility
- nonspecific resistance
- specific resistance (immunity)
Compare 1st, 2nd and last (3rd) line of defense.
Describe several mechanical factors involved in resistance to disease.
Describe several chemical factors involved in resistance to disease.
Give the names of the WBCs, their relative frequencies and their basic functions.
Define the term phagocytosis, and name the two types of phagocytes; Macrophages (Monocytes) and Microphages (PMN's or neutrophils). Note the mechanism of phagocytosis.
Define a phagocyte and which is first to an area of trauma and is associated with pus.
Define opsonization and give two mechanisms to opsonize.
Describe the process of inflammation, and its significance to host resistance. Include the following terms:
- vasodilation
- histamine
- diapedesis
Define what a fever is, what causes it, and if or any benefits it has to the host.
Explain the initiation and outcomes of the Complement (C') system. Both pathways.
Give the roles of the following C' proteins: C3a, C3b, C5a and C6 – 9.
Briefly describe the action of interferon.

Chapter 17
Distinguish between the humoral immune system and cell-mediated, immune system.
Distinguish between native immunity and acquired immunity.
Differentiate between active and passive immunity, for both natural and artificial immunity.
Define the following terms:
- antigen
- antibody
- antigenicity
- hapten
Draw and label the structure of an antibody monomer molecule (see page 417). Include the following components:
- light chain
- heavy chain
- variable region
- constant region
List the types of classes of Ig found in the heavy chain of antibodies, and give their functions (note any major structural differences):

<table>
<thead>
<tr>
<th>IgG</th>
<th>IgA</th>
<th>IgM</th>
<th>IgD</th>
<th>IgE</th>
</tr>
</thead>
</table>
Explain the mechanism of antibody formation. Include the role of the following:
- T-cells
- B-cells
- Macrophage
- plasma cells
- memory cells
- sensitized T-cells
- Cytotoxic T-cells
- helper T-cells
- suppressor T-cells
- primary response
- Anamnestic (secondary response)
- clonal selection
Explain T-dependent antigen processing versus T-independent. Note role of T cell and APC.

Chapter 18
Define serology, and vaccine.
Describe precipitation and agglutination reactions of antigen antibody.
Explain, and diagram, the relationship between antibody concentration and antigen concentration in precipitation reactions.
Compare direct vs indirect serological tests.
Briefly describe the following immunological tests:
- neutralization
- complement fixation
- immunofluorescence
- ELISA
- hemagglutination
- agglutination
- precipitation

Chapter 19
Define the following terms:
- Hypersensitivity
- allergy
- allergen
- Anaphylaxis
Differentiate between the three (3) types of immediate hypersensitivities and delayed hypersensitivity.
Describe the function of the following mediators of anaphylaxis:
- Histamine
- Heparin
- Leukotrienes
Explain the antigenicity and cross reactions involved with the human ABO blood types.
Describe the role antibodies play in the hemolytic disease of the newborn call "erythroblastosis fetalis".

Explain how the major histocompatibility complex affects our ability to have transplants: autograft isograft allograft xenografts

Describe the function of the drug cyclosporine.
Explain what is meant by the term "self" recognition.
Describe the origin, symptoms, modes of transmission, vaccines? and treatments, and future of AIDS.
Describe the immune response to cancer using the following terms: tumor-specific antigens natural killer T-cells immunological surveillance immunotherapy