NLN Exam Study Guide

** Review, know structure & function (ie. A & P)**

A. The Animal Cell
   1) The organelles & their function
   2) Energy production in the cell
   3) Lactic acid/krebs cycle
   4) Energy production/source in DM (ie when insulin is not present)
   5) meiosis vs. mitosis, haploid vs. diploid state
   6) How things get inside & outside a cell?
      a) osmosis
      b) Diffusion - facilitated diffusion
      c) Active transport
      d) pinocytosis
      e) sodium pump
      f) calcium channel/pump

B. Tissue types (ie. epithelial vs. endothelial)

C. The skin - structure & function

D. Types of Joints
   1) long bone growth
   2) bone growth ostoclasts vs. osteoblasts
   3) function of ligaments & tendons
   4) muscle contraction - mechanism - minerals ie. Ca^{++}
   5) def. of rotation, flexion, extension, rotation in relation to long bones & major joints.

E. Fetal blood flow
   1) Structure of heart
   2) Blood flow through heart valves

F. Adult Heart
   1) heart sounds - S1 S2 S3 S4 causes
   2) cardiac cycle diastole & systole
   3) Basic EKG
      a) p wave - pr interval
      b) QRS
      c) ST Interval
      d) T wave
      e) What they relate to in regards to function (ie. depolarization, repolarization)
   4)
      a) Atrial node
      b) SA node
      c) bundle of his
      d) ventricular wave
      e) purkinjie fibers

      KNOW WHAT EACH ONE DOES!!
   5) Nerves -> heart rate up/down, i.e sympathetic vs parasympathetic control

G. Blood cell types and function
   1) RBC - trace origin (ie. stem cells)
   2) Platelets
   3) WBC (various types)
   4) Where is blood formed - the process of hematopoesis

5) Physiology of blood pressure - maintenance of pressure under shock conditions
6) Veins vs. arteries, structure & function
7) process of clotting - various stages
8) Capillary permeability - control
9) exercise - physiological response - (ie. blood flow, heart rate, response)
10) Plasma proteins - what are they - what is their function
11) Function of lymph system
12) erythropoeitin - production, where?

H. Chest wall, diaphragm, pleura, structure & function

I. Lungs: Structure & function
1) Blood gases
   a) pH, P02, C02
   b) Cl, acidosis vs alkalosis
2) Hyper vs. hypoventaliation - what happens to BG's?
3) Respiratory center - effect of high C02 + low O2
4) Anabolism vs. catabolism - def & function; examples in body on cellular and organ and system level.

J. Digestive System
1) Structure and function of the whole system and the various organs.
2) def. of endocrine vs. exocrine functions of the digestive organs in particular the:
   a) salivary glands
   b) stomach
   c) gallbladder
   d) pancreas
   e) liver
3) know the various digestive enzymes and what they breakdown (ie. pepsin, catylase, etc.

K. The Endocrine System
1) The pituitary gland
   a) Anterior
   b) Posterior
   c) Hormone secretions
2) Negative feedback system
3) The hormones - their function, where produced & what they act on.

L. The kidney - structure and function
1) functional unit, the nephron, glommerulus, tubeles etc
2) formation of urine
3) the constituents of urine
4) The GU system - anatomy & structure

M. Male & Female reproductive anatomy structure

N. Neurosystem
1) Structure & function
   a) meninges
   b) CSF - formation & circulation
   c) Reflex arc
2) Flight or Fight response - what happens? - the process
   a) the neurotransmitters
   b) the muscles
   c) the organs
3) Part of the Brain
4) Nerve action potential
   a) movement of ions? - which and what way?

- b) norpinephene - acetycholine - cholinesterase - FUNCTION
- 5) blood osmolarity - where detected

O. Eye - structure & function

P. Ear - structure & function
- 1) auditory branch
- 2) vestibular branch

Q. Other senses
- 1) Various receptors mainly in skin
  - a) chemo receptors
  - b) mecano receptors
  - c) propreo receptors
  - d) thermo receptors

R. Immune System
- 1) Structure & function
- 2) Components
  - a) T Cells
  - b) B Cells
- 3) Cellular vs. humoral immunity