**Biol 2302 Final Exam Review Guide**

**Chap 15 – Endocrine**

1. Be able to locate the major endocrine organs on a diagram. Additionally, explain what each organ does. Pg 533 and 546-547 plus notes.
2. Explain what a hormone is and how hormones are classified chemically. Also, how hormones ‘target’ tissues (see notes, “puzzle”).
3. Know all the structures and physiology of the pituitary gland (for example, name of anterior lobe and what hormones are found there, name of the posterior lobe and what hormones are found there). What 3 endocrine organs does the pituitary gland control?
4. Know all the structures of the thyroid (pg 548), the microscopic tissue (follicle cells, parafollicular cells, etc.) and the related hormones.
5. Know all the endocrine diseases that we discussed in class and had a group activity over ( Graves disease, Cretinism, Cushings, Addisons, etc.) pg 533 or notes
6. Discuss the location of the parathyroid glands. State what they do (know the chief hormone coming from them and what it controls).
7. Explain the structure of the adrenal glands and the hormones in each layer as well as what these hormones do. Pg 555 plus notes
8. Know the pancreas. Why is it considered both an exocrine and endocrine gland? What are the two hormones released from the pancreas and what do they control? Pg 560 – 561
9. Explain diabetes .
10. Don’t forget to review the pineal gland and the thymus.

**Chap 16 – Blood**

1. Describe the composition and physical characteristics of whole blood.
2. List the functions of blood.
3. Describe the structure, function and production of RBCs, WBCs, and platelets.
4. Be sure you know all about the 6 different types of WBCs.
5. Discuss the diseases and disorders of blood (see notes).
6. Explain the clotting process (see notes).
7. Describe the ABO and Rh blood groups.

**Chap 17 – Heart**

1. Describe the heart coverings.
2. Describe the structures of the heart (valves, chambers, etc.) and their functions
3. Trace the pathway of blood through the heart.
4. Trace the pathway of the electrical system through the various structures of the heart.
5. Be able to interpret an ECG strip (Know what is happening in the heart with the PQRS wave)
6. Recognize the major branches and distribution of the coronary arteries.

**Chap 18 – Circulation**

1. In general, describe the physical make-up of arteries, veins and capillaries (i.e., thickness, tunics, which one has valves which ones do not, etc.)
2. Be able to name all of the major arteries and veins in the human body if presented to you in a diagram (see notes).

**Chap 19 – Lymphatic System**

1. Name all of the major lymphatic organs and their locations. Then, describe each organ and state what each organ does.
2. Describe the structures (anatomy) of a lymph node. Explain how lymph flows through it and exits. Be sure you can discuss the specialized cells that live there (i.e., macrophages, lymphocytes, etc.)
3. Explain the cellular tissue of the pancreas (for example, beta cells make what? etc.)
4. Describe the cellular tissue (make up) of the spleen (i.e., red pulp is mostly …, white pulp is mostly …, etc.)
5. Describe lymph vessels, lymph capillaries
6. Name the major lymphatic trunks on diagram.

**Chap 21 – Respiratory**

1. Know the major respiratory diseases we covered such as TB, pneumonia, etc.)
2. Be able to identify the major respiratory organs and structures on diagrams we covered (like larynx, pharynx, etc.)
3. Know the functions of the structures as well.
4. Explain how the epiglottis works.
5. Describe the vocal folds and how they work.

**Chap 22 – Digestion**

1. Describe peristalsis.
2. Differentiate between mechanical and chemical digestion.
3. Explain the digestion of starch/carbs in the mouth.
4. Know the major digestive organs (on diagram) and their functions. Be sure you know what food type (carb, fat, protein, etc.) is broken down where.
5. Be able to discuss the structures and functions of these structures in the stomach including chief cells, gastric pits, etc. Don’t forget to look at enzymes like pepsinogen and pepsin in the stomach as well. Know all anatomy (fundus, rugae, etc.)
6. Explain what a stomach ulcer is. Discuss the latest findings regarding the cause of stomach ulcers.
7. Explain the significance of villi and microvilli in the small intestine. Explain the role of helpful bacteria in completing digestion. Discuss the entire anatomy and physiology of the small intestine (include Brunner’s glands, crypts, lacteals, etc.)
8. Discuss the way the pancreas, gall bladder and liver aid digestion.
9. What happens to food in the large intestine? Discuss.
10. 10. Be able to name the structures in the colon on diagram.

**Ch 23 – Nutrition**

1. Explain the “crisis in America” regarding diet and lifestyle (i.e., diseases striking our country in particular).
2. Understand the major groups of nutrients and be able to give numerous examples of each.
3. Explain food pyramid & the balance of daily nutrient intakes.
4. Distinguish between simple and complex carbohydrates. And explain the benefits of a diet high in complex carbohydrate.
5. Explain the glycemic index.
6. Differentiate between complete and incomplete proteins.
7. Describe the different lipids. Explain the healthiest of these and the least healthiest.
8. Identify the basic vitamins and their importance. Identify the basic minerals and their importance.
9. Explain the vitamin deficiency disease scurvy, rickets, and beriberi.
10. Explain how to read a food label. Qualify foods as “healthy” or not.

**Chap 24**

1. List substances that the kidneys filter from the blood.
2. We watched one family’s dilemma (video clip)as they face polycystic kidney disease. What does that disease do to the kidneys? It is hereditary or not?
3. Kidney stones are typically formed from what 3 substances?
4. Urine is known to consist of 95% water. What type substances are found in the other 5%?
5. Explain how urine color relates to hydration.
6. Discuss urochrome. Include how it is created.
7. Explain the 6 abnormal urinary constituents and what diseases they may possibly indicate.
8. Review Ch 24, Part 1 slide 10 (Parts of the urinary system).
9. Review Ch 24, Part 1 slide 11 (structures of the bladder).
10. Explain why the right kidney is lower than the left.
11. Review Ch 24, Part 2 slide 5 (external kidney).
12. Review Ch 24, Part 2 slide 6 (internal structures of the kidney).
13. Explain the role of smooth muscle tissue in the kidneys and ureters.
14. Be able to convey the physiology of internal kidney structures such as calyces, renal pelvis, medulla, hilum, etc. (from Ch 24, Part 2 slide 7).
15. Describe blood flow through the kidney.
16. Understand that nephrons are the basic filtering units of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_?
17. Explain the basic structure of a nephron (Bpwman’s capsule, glomerulus, etc.) and how it filters.
18. Differentiate between cortical nephrons and juxamedullary nephrons. Which is most common?
19. Review Ch 24, Part 2 slide 14 “Kidney Physiology” for units of blood filtered? How much to blood plasma? To urine?
20. Explain the effect of ADH with regard to the kidneys.
21. Describe the action of diuretics on the kidney. Site at least 2 examples of diuretics

**Chap 25**

1. Explain the phenomenon of hyponatremia.
2. Explain body water content in infants versus healthy adult males/females, and elderly people. How do you account for differences in males and females?
3. Explain the two types of fluid compartments in the human body. What % of water is held in each?
4. Explain solvent versus solute (regarding solutions).
5. Familiarize yourself with slide 7 “Electrolye Composition of Body Fluids”. Be able to interpret the graph to answer various questions about what it represents in the body.
6. What does electrolyte balance really mean?
7. What are 4 things salt helps the body accomplish?
8. Name 3 ways salt is lost in the body.
9. Review slide 9. Explain the effects of potassium and magnesium on the heart.
10. Explain water movement in the body as it relates to osmotic gradient.
11. Thirst is regulated by the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the brain. How? Include the role of angiotensin II in this process.