Study Guide for Exam 2 – A & P I

1. Name the special characteristics(types of cells), possible locations, and functions of the tissues below.
   1. Simple squamous – **single layer of flat cells**
      1. **Locations – kidney glomeruli, lining of heart, blood vessels, lymphatic vessels, and serosae**
      2. **Functions – diffusion and filtration, friction-reducing lining in lymphatic and cardiovascular systems**
   2. Simple cuboidal – **single layer of cube-like cells**
      1. **Locations – kidney tubules, ducts and secretory portions of small glands, and ovary surface**
      2. **Functions – secretion and absorption**
   3. Simple columnar – **single layer of tall cells**
      1. **Locations –** 
         1. **Nonciliated – line digestive tract and gall bladder**
         2. **Ciliated – small bronchi (lungs), uterine tubes, and regions of uterus**
      2. **Functions – absorption and secretion**
   4. Pseudostratified – single layer of cells with different heights
      1. Locations – sperm, carrying ducts, and trachea
      2. Functions – secretion and propulsion of mucus
   5. Transitional – **surface cells are dome shaped**
      1. **Locations – urinary bladder, ureters, and part of the urethra**
      2. **Functions – stretch to permit distension of bladder**
   6. Stratified squamous – **several layers of flat cells**
      1. **Locations – skin, linings of esophagus, mouth, and vagina**
      2. **Protections of underlying areas subjected to abrasion**
   7. Stratified cuboidal and columnar – **several layers of square or tall cells**
      1. **Cuboidal locations – sweat and mammary glands**
      2. **Cuboidal functions – secretion**
      3. **Columnar locations – pharynx, male urethra, and glandular ducts**
      4. **Columnar functions - protection**
   8. Glandular
      1. **Function – makes and secretes fluid**
   9. Embryonic – **Ground substance with fibers and mesenchymal cells**
      1. **Locations – embryo**
      2. **Functions - Gives rise to all other CT**
   10. Areolar – **all 3 fibers, fibroblasts, macrophages, mast cells, and WBCs**
       1. **Locations – widely distributed**
       2. **Functions – wraps and cushions organs**
   11. Adipose – **adipocytes, similar to areolar**
       1. **Locations – under skin, around kidneys, within abdomen, and in breasts**
       2. **Functions – reserves food, insulates against heat loss, supports and protects**
   12. Reticular – **loose ground substance with reticular fibers**
       1. **Locations – lymph nodes, bone marrow, and spleen**
       2. **Functions – soft internal skeleton to support other cell types**
   13. Dense regular – **parallel collagen fibers with few elastic fibers, fibroblasts**
       1. **Locations – tendons and ligaments**
       2. **Functions – attaches muscles to bone or other muscles, and bone to bone**
   14. Dense irregular – **irregularly arranged collagen fibers with some elastic, fibroblasts** 
       1. **Locations – dermis, submucosa of digestive tract, and organ capsules**
       2. **Functions – withstands tension in many directions**
   15. hyaline cartilage – **firm matrix with collagen fibers, chondrocytes in lacunae**
       1. **Locations – embryonic skeleton, end of long bones, nose, trachea, and larynx**
       2. **Functions – supports, reinforces, cushions, and resists compression**
   16. elastic cartilage- **more elastic fibers**
       1. **locations – external ear and epiglottis**
       2. **functions – maintains shape and structure while allowing flexibility**
   17. fibrocartilage – **less firm collagen**
       1. **locations – intervertebral discs, pubic symphysis, and discs of knee**
       2. **function – tensile strength and absorb shock**
   18. bone – **calcified matrix with collagen fibers, osteocytes found in lacunae**
       1. **location – skeleton**
       2. **functions – supports protects and provides lever for muscular action, stores calcium, minerals, and fat**
   19. blood – **RBC and WBC in plasma**
       1. **location – in blood vessels**
       2. **functions – transport of respiratory gases, nutrients, and wastes**
   20. nervous tissue – **most sophisticate; branched neurons with long processes and support cells**
       1. **location – brain, spinal cord, and peripheral nerves**
       2. **function – transmit electrical signals from receptors to effectors**
   21. skeletal muscle – **multinucleate with striations**
       1. **locations – skeletal muscles that attach bones to skin**
       2. **functions – voluntary control**
   22. cardiac muscle – **1 nuclei, striations, intercalated discs**
       1. **locations - walls of the heart**
       2. **functions – propels blood into the circulation (involuntary)**
   23. smooth muscle – **no striations with central nuclei**
       1. **locations – walls of hollow organs**
       2. **propels substances along internal passageways**
          1. **peristalsis**
2. What are the 3 types of fibers? What are the characteristics and functions of each?

**Collagen – tough, provides tensile strength**

**Elastic – allow for stretch**

**Reticular – for networks for support**

1. What are the two types of glands? What makes each of them unique? What are examples of each?

**Endocrine – produce hormones, ductless**

**Exocrine – secrete products onto body surface or into body cavities**

1. What are the types of secretion? Give examples of each.

**Merocrine – secrete by exocytosis (sweat and pancreas)**

**Holocrine – secrete by rupturing (sebaceous glands)**

1. What are the 3 steps in tissue repair? What occurs during each step?
   * + 1. **Inflammation – dilating of blood vessels, Clotting of blood**
       2. **Organization – blood clot replaced by granulation tissue, epithelium begins regeneration, debris is phagocytized**
       3. **Regeneration – scab detaches, epithelium thickens**