

## Review Questions for the Comprehensive Part of the APHNT Final Exam

Comprehensive Questions: (second time is so much easier!)

- 1) Be able to identify the following cell structures: cell membrane, ribosomes, nucleus, mitochondrion, Golgi body (apparatus), rough and smooth endoplasmic reticulum, and cytoplasm.
- 2) Define simple diffusion, osmosis, active transport, endocytosis, exocytosis.
- 3) Define mitosis and meiosis. Give an overview of each process.
- 4) What is pH? Define: matter, atom, ion, acid, base, and buffer
- 5) Be able to: identify types of epithelium from pictures, compare and contrast cartilage (but not types of cartilage) and bone tissue, and the classification (voluntary vs involuntary; striated vs nonstriated) of the three types of muscle.
- 6) Distinguish among external respiration, internal respiration, and cellular respiration
- 7) Know the anatomy of the respiratory tree: trachea, bronchi, bronchioles, alveolar sacs. Be able to describe the changes in the major features of the wall of the respiratory tract: cartilages, mucous glands, and epithelium.
- 8) Be able to identify the cartilages of the larynx, their articulations and movements.
- 9) Know the names and actions of the extrinsic and intrinsic laryngeal muscles and the pharyngeal muscles.
- 10) Briefly describe how the lungs are ventilated. Why does air enter the lungs during an inspiration? Why does air exit during an expiration? What muscles are used during a normal inspiration? What is the difference between a normal (passive) expiration and a forced expiration? What forces have to be overcome to breathe?
- 11) What are the three mechanisms described in class that regulate breathing? Briefly describe each. What regulates breathing rate in normal individuals: CO<sub>2</sub> drive or hypoxic drive? What prevents a person from overinflating his/her lungs? Why is it dangerous to give a hyperventilating emphysema patient 100% oxygen?.
- 12) Review the gross anatomy of the sagittal section of the head: nares, nasal conchae, internal nares, nasal cavity, pharynx (naso- oro-, and laryngopharynx), and larynx (vestibule, ventricle, atrium).
- 13) Review the neural supply to the larynx: sensory, motor (somatic & autonomic).
- 14) Define: phonation, articulation. Describe the glottal cycle. What role does elastic recoil and the Bernoulli effect have in the glottal cycle? Are the vocal folds abducted or adducted during phonation? During normal breathing? During forced expiration?
- 15) What two factors are modified to change pitch of voice? How is each factor modified to raise pitch? Lower pitch?
- 16) Briefly describe the source-filter theory and the role that the pharynx, oral cavity, and nasal cavity play. What closes the velopharyngeal port and what effect does this have on articulation?
- 18) Know the names and actions of the intrinsic and extrinsic tongue muscles.
- 19) Know the anatomy of a tooth: crown, neck, root, enamel, dentin, cementum. Identify the four classes of teeth and their functions. What are deciduous or "milk" teeth? How would the teeth of a child at 3 years of age differ from an adult 30 years of age?
- 20) Review of general anatomical features of the head: What is the function of tonsils? Give the name and location of the three major tonsils. Where are some minor tonsils located? What bones make up the hard palate? What bones make up the bony nasal septum?

- What are the paranasal sinuses? What are the major bones containing paranasal sinuses?
- 21) Describe the human life cycle. Use the terms mitosis, meiosis, haploid, diploid, gametogenesis, and fertilization.
  - 22) What is gametogenesis? Spermatogenesis? Oogenesis? Where in the human body does each occur? What is a "germ" cell?
  - 23) Be able to identify from a picture: (in males) testes; (in females) ovaries, oviduct (fallopian tube), uterus, cervix, and vagina. What is a follicle? What do follicle cells do? What is the corpus luteum? What is the function of the corpus luteum?
  - 24) Describe the menstrual cycle. Average duration? What hormones regulate the ovaries? What are the sex hormones? Which hormones regulate the uterus? Which hormone stimulates follicle development? Which hormone promotes ovulation?
  - 25) Describe the process of fertilization. Where does fertilization normally occur?
  - 26) When does the embryo implant in the uterus? What are the cleavage stages and where would these occur in the reproductive tract? What stage implants in the uterus?
  - 27) What are the three germ layers that form during gastrulation and what structures are formed by them?
  - 28) Briefly describe the development of the respiratory system with the major events at 2-3 weeks, 4 weeks, 5 weeks, 8 weeks, 13-25 weeks, and 26 weeks to birth. At what time can a fetus be born premature with functional lungs?
  - 29) Name the extraembryonic membranes and describe the functions of each.
  - 30) Briefly describe the formation of the nervous systems using the terms neuroectoderm, neural plate, notochord, neural groove, and neural tube.
  - 31) Define pharyngeal groove, pharyngeal pouch, pharyngeal arch. What are the bone, cartilage, and muscular derivatives of the first arch? Arches II-VI? What are the derivatives of pharyngeal pouch I? Pouches II-VI? What is formed by pharyngeal groove I?
  - 32) Know the anatomy of the brain: cerebrum, diencephalon, hypothalamus, thalamus, midbrain, corpora quadrigemina, superior colliculi, inferior colliculi, pons, medulla, gray matter, white matter, lobes of the cerebrum, sulci, gyri, fissures.
  - 33) What is the difference in function of the projection areas versus association areas?
  - 34) Know the functional areas of the brain: Broca's area, prefrontal area, primary motor area, somatosensory area, visual area, Wernicke's area, Heschle's area
  - 35) Know the anatomy of the spinal cord: gray matter, white matter, ventral fissure, dorsal sulcus, central canal.