

BIOLOGY 224
HUMAN ANATOMY AND PHYSIOLOGY - PART II
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Exam 2 Study Guide

Example Multiple choice Questions:

1. Which of the following structures is derived at least partially from both mesoderm *and* endoderm?
 - a. lungs
 - b. liver
 - c. spleen
 - d. **A and B**
 - e. all of the above.

2. Sympathetic innervation of the lungs:
 - a. originates in thoracic segments T10-11.
 - b. is provided by the vagus nerve.
 - c. constricts blood vessels and bronchioles of the lungs.
 - d. synapse in the most caudal ganglia of the sympathetic trunk.
 - e. **goes up the sympathetic trunk before going back down to the lungs.**

3. Newborn babies exhibit what kind of breathing?
 - a. Thoracic breathing
 - b. **Abominal breathing**
 - c. Residual breathing
 - d. Passive breathing
 - e. Generally noisy and disrruptive breathing

4. Which of the following muscles would *not* be used in forced exhalation?
 - a. rectus abdominus
 - b. latissimus dorsi
 - c. pectoralis major
 - d. internal intercostal
 - e. **diaphragm**

5. The human immunodeficiency virus (HIV) preferentially attacks:
 - a. alveolar macrophages.
 - b. antigens.
 - c. lymphoid organs.
 - d. **T helper lymphocytes.**
 - e. the natural killer cell form of lymphocytes.

6. The lesser curvature of the stomach:
 - a. **corresponds to the ventral side of the embryonic gut.**
 - b. is the point of attachment of the greater omentum.
 - c. is where the common bile duct and pancreatic duct enter the gut tube.
 - d. faces caudally and medially in the adult human.
 - e. is innervated by the lesser splanchnic nerve.

7. The liver develops:
 - a. as a ventral outgrowth of the embryonic foregut.
 - b. incorporates both endodermal and mesodermal components.
 - c. develops in the ventral mesentery.
 - d. is connected to the stomach by the lesser omentum.
 - e. **all of the above.**

8. A vein leaving the lining of the ileum would be a branch of what vessel? (A modification of a student question.)
 - a. left gastric vein
 - b. common hepatic vein
 - c. **superior mesenteric vein**
 - d. inferior mesenteric vein
 - e. celiac vein

9. The best osteological (bony) evidence that humans are adapted to eat a varied (omnivorous) diet may be found in:
 - a. the secondary palate.
 - b. **heterodont (many different shapes) teeth.**
 - c. palatine bones.
 - d. the possession of a long midgut.
 - e. phalanges for manipulating knives, forks, and spoons.

10. The first site of chemical digestion in the gut tube takes place in which of the following?
 - a. salivary glands
 - b. **oral pharynx**
 - c. stomach
 - d. nasal pharynx
 - e. esophagus

11. The cranialmost region of the gut tube where chemical absorption may take place is in:
 - a. **the oral cavity.**
 - b. the nasal cavity
 - c. the common pharynx
 - d. the stomach
 - e. the duodenum

12. Which of the following structures are not exclusively associated with the derivatives of the embryonic foregut?
 - a. greater splanchnic nerve
 - b. splenic vein

- c. right gastric artery
- d. **vagus nerve**
- e. All of them are exclusively associated with the derivatives of the embryonic foregut.

Example Short Answer Review Questions (These could be short answer questions, or integrated into an essay.)

- 13) The process by which larger food particles are broken down into smaller ones (either chemically or mechanically) is known as:
- 14) Which of the types of antibodies described in class may be passed from a mother to her child via nursing?
- 15) What is the only part of the small intestine that contributes to part of the foregut?
- 16) What are the bones that make up the structure that allows you to breathe through your nose while you chew in your oral pharynx?
- 17) What is the only part of the gut tube between the oral pharynx and the duodenum in which there is no absorption or digestion taking place?
- 18) What is the name of the structure that allows oxygenated blood from the umbilical artery to bypass the liver on its way to the inferior vena cava of the fetus?
- 19) What is the name of the opening between the right and left atria of a fetus?
- 20) Which enzyme activates chymotrypsin in the duodenum of a normal adult human? What other examples of this kind of question can you come up with?
- 21) What type of antibodies are implicated in allergic responses? (The kind that make Dr. Sumida miserable at this time of year.)
- 22) (A student submitted question.) What part of the colon of the midgut is not secondarily retroperitoneal?
- 23) How does the liver prepare for the possibility that mother's milk might not be available immediately after the birth of a newborn child?
- 24) The derivative of the ventral mesentery that passes between the stomach and the liver is known as the:

Possible Essay questions:

THIS IS BY NO MEANS A COMPLETE LIST, BUT ANY OF THEM COULD BE ON THE EXAM AS AN ESSAY, OR PART OF A MULTIPLE CHOICE QUESTION.

In tabular form, list the arteries, veins, parasympathetic innervation, sympathetic ganglion, sympathetic levels, and sympathetic nerve for the fore-, mid-, and hindgut.

Be able to draw how the foregut rotates to place the liver and stomach in their adult positions.

List and explain the structures that have vascular bypasses in the fetus.

What are muscles and associated innervation that contribute to mechanical digestion in the mouth (i.e. chewing).

What are the major sensory structures and nerves associated with the major ectodermal placodes of the head region?

In order from proximal to distal, what are the major branches of the internal iliac artery?

Be able to label the major bony landmarks of the bony pelvis and sacral articulation.