A&P Basics

1. Which of the following disciplines is MOST likely to concentrate on the structure and function of organelles?
   a. Gross anatomy
   b. Histology
   c. Cytology
   d. Embryology

2. Which of the following disciplines is LEAST likely to require the use of a microscope?
   a. Gross anatomy
   b. Embryology
   c. Histology
   d. Cytology

3. During the process of cell division there are several phases. During one of them the nucleus is split “apart” or split “up” into 2 separate portions. Based on your knowledge of word roots, which of the following terms refers to this phase?
   a. Interphase
   b. Anaphase
   c. Gammaphase
   d. Metaphase
   e. Prophase

4. In class we discussed the hierarchical arrangement of the human body. Arrange the following structures according to that plan from the simplest to the most complex.
   1. Oxygen molecule
   2. Respiratory system
   3. Mitochondria
   4. Trachea
   5. Pseudostratified columnar epithelium
   6. Goblet cell
   a. 1,6,3,4,5,2
   b. 2,4,5,6,1,3
   c. 1,3,6,5,4,2
   d. 3,1,5,6,4,2
   e. 1,6,3,2,5,4

5. Which of the following organ systems functions in communication and control?
   a. Muscular
   b. Cardiovascular
   c. Nervous
   d. Spino-cerebral
   e. Reproductive
6. Which of the following is TRUE about humans?
   a. We are vertebrates and we are bipedal.
   b. We have mammary glands and a total of 6 middle ear bones.
   c. We have a large brain size to body size ratio.
   d. We have are considered to be mammals, primates, and hominids.
   e. All of the above

7. Angiotensin II is a chemical that causes blood pressure to rise. Peyton is a normal individual and he has X amount of angiotensin II in his bloodstream. Eli has low blood pressure because his heart does not beat with the proper force. Eli has Z amount of angiotensin II in his bloodstream. Which of the following is TRUE?
   a. X=Z
   b. X>Z
   c. X<Z

8. Which of the following is an example of negative feedback?
   a. Control of blood pressure
   b. Control of blood glucose
   c. Control of body temperature
   d. Control of blood pH
   e. All of the above

9. K-strophanthidin is a chemical that prevents the sodium-potassium pump from working. This would cause cell levels of potassium to?
   a. Increase
   b. Decrease

Questions 10-13 refer to the following paragraph: Blood pH is sensed by cells known as chemoreceptors found in the major arteries of the chest. Chemoreceptors constantly send information about blood pH to a part of the brain called the ventral respiratory group via the cranial nerve 9 and cranial nerve 10. In order to correct disturbances in blood pH, the ventral respiratory group sends signals to the diaphragm (a muscle in the thorax) to adjust its rate of contraction. These signals are sent via the phrenic nerve.

10. Which of the following structures serves as the efferent path?
    a. Chemoreceptor
    b. Phrenic nerve
    c. Cranial nerve 9
    d. Ventral respiratory group
    e. Diaphragm

11. Which of the following structures serves as the control center?
    a. Chemoreceptor
    b. Phrenic nerve
    c. Cranial nerve 9
    d. Ventral respiratory group
    e. Diaphragm
12. Which of the following structures serves as the effector?
   a. Chemoreceptor
   b. Phrenic nerve
   c. Cranial nerve 9
   d. Ventral respiratory group
   e. Diaphragm

13. Which of the following structures serves as the afferent path?
   a. Chemoreceptor
   b. Phrenic nerve
   c. Cranial nerve 9
   d. Ventral respiratory group
   e. Diaphragm

14. We discussed a positive feedback process that occurs during childbirth. During this process, cervical stretch cause release of the hormone oxytocin to __________ which caused the degree of cervical stretch to __________. 
   a. Increase-increase
   b. Increase-decrease
   c. Decrease-decrease
   d. Decrease-increase

15. Which of the following is NOT TRUE?
   a. In anatomy and physiology, the function of an organ usually depends on its structure.
   b. A function of the integumentary system is protection
   c. Positive feedback systems are more common than negative feedback systems.
   d. Homeostasis is necessary for life.
   e. Pathology is the study of disease.

16. A group of cells with a common structure and function is an example of a(n):
   a. Organelle
   b. Embryo
   c. Organ
   d. Tissue
   e. Organ system

17. There are about _______________ cells in the body and about _______________ different types of cells in the body.
   a. 1 billion – 200
   b. 100 million – 500
   c. 100 trillion – 200
   d. 10 million – 700
   e. 100 trillion – 20 thousand
18. Which of the following graphs would most likely represent the change in a homeostatic variable (y-axis) over time (x-axis)?

![Graphs A, B, and C]

Questions 19-22 deal with the following description of a homeostatic control system that helps regulate blood pressure.

A drop in blood pressure will be detected by specialized cells in arteries known as baroreceptors. Information from the baroreceptors is carried to the brain by the vagus and glossopharyngeal nerves. The part of the brain that receives the information about blood pressure is the cardiac center in the medulla oblongata of the brain. Signals will then go from the cardiac center to the heart via the cardiac sympathetic nerves. The rate and force of the heart’s contractions will then increase, which will in turn cause the blood pressure to rise.

19. What structure(s) act(s) as the control center?
   a. Cardiac sympathetic nerves
   b. Baroreceptors
   c. Heart
   d. Vagus and glossopharyngeal nerves
   e. Medulla oblongata

20. What structure(s) constitute(s) the afferent path?
   a. Cardiac sympathetic nerves
   b. Baroreceptors
   c. Heart
   d. Vagus and glossopharyngeal nerves
   e. Medulla oblongata

21. What structure(s) constitute(s) the efferent path?
   a. Cardiac sympathetic nerves
   b. Baroreceptors
   c. Heart
   d. Vagus and glossopharyngeal nerves
   e. Medulla oblongata

22. What organ(s) is(are) the effector?
   a. Cardiac sympathetic nerves
   b. Baroreceptors
   c. Heart
   d. Vagus and glossopharyngeal nerves
   e. Medulla oblongata
23. The number of positive feedback systems in the body is _________________________ the number of negative feedback systems.
   a. Greater than
   b. Fewer than
   c. The same as

24. Sodium levels in Tim’s blood began to fall. His adrenal glands released a hormone called aldosterone which decreased the sodium output in his urine and caused his blood sodium levels to rise. This is an example of a:
   a. Positive feedback mechanism
   b. Negative feedback mechanism

25. The word “negative” is used in the concept of negative feedback to indicate that the variable being control (e.g. blood pressure) is always brought down from a higher level to a lower level.
   a. True
   b. False