Zoology 120 - Human Anatomy
Third Lecture Exam
October 29, 1999

Name:________________________________________

Laboratory Time:________________________________________

Instructions:

1. Write your ID Number on the answer sheet.

2. Block out the correct letter on the answer sheet after carefully reading the question. Use #2 or soft pencil to mark your answer sheet. When erasing, make sure the erasure is complete and clean, otherwise, the computer will mark you answer wrong.

3. Write your name on the test and the answer sheet.

4. Do your own work!

5. Only one letter answer is correct

6. There are a total of 25 questions, worth 2 points each, for a total of 50 points.
1. Hypothalamus is the region of the central nervous system where:
   a. Motor neurons originate
   b. Sensory information originates
   c. Reflex arc terminates
   d. Sensory relay station is located
   e. Autonomic functions are coordinated

2. The principle of reciprocal innervation or inhibition is best described by the following:
   a. Prime movers contract while antagonist muscles remain relaxed
   b. Simultaneous stimulation of all muscles during a reflex
   c. Simultaneous inhibition of all inhibited muscles during a reflex
   d. Intermittent (off-on) inhibition and stimulation of affected muscles during reflex
   e. None of the above

3. Cell bodies of the corticospinal tract originate in:
   a. The dorsal root ganglia
   b. Hypothalamus
   c. Precentral gyrus
   d. Postcentral gyrus
   e. Thalamus

4. What functions as the pacemaker in the heart.
   a. Vagus nerve
   b. Autonomic nerves
   c. Sino-atrial node
   d. Hypothalamus

A Zoology 120 student tells us that one of the parents had a stroke. The right side of the face is paralyzed (no sensation and no muscle function) and the right upper limb shows weakness (very weak fingers). Answer questions 5-8 based on this damage.

5. If the muscles in the fingers of the right hand are severely affected, it is likely that:
   a. Left spinothalamic tract was damaged
   b. Left corticospinal tract was damaged
   c. Thalamus was damaged
   e. Temporal lobe was damaged

6. The damage to the right side of the face would indicate that:
   a. Right lateral side of the brain was damaged
   b. Right medial side of the brain was damaged
   c. Left medial side of the brain was damaged
   d. Left lateral side of the brain was damaged
7. Which major blood vessel could possibly be involved to cause such damage?
   a. Right middle cerebral artery
   b. Right anterior cerebral artery
   c. Left middle cerebral artery
   d. Left posterior cerebral artery

8. What part of the brain in the area of the stroke was most likely damaged?
   a. Frontal lobe and temporal lobe
   b. Precentral and postcentral gyrus
   c. Somatosensory association area
   d. Primary motor area and premotor area

9. Cerebro spinal fluid (CSF) circulates around the brain and spinal cord. CSF is then returned:
   a. Directly to the heart
   b. First into the venous blood
   c. To the ventricles before returning to the heart
   d. To the choroid plexus of each ventricle and then veins

10. Which of the following generalizations is correct about the autonomic nervous system?
    a. Postganglionic axons in both divisions release Ach as neurotransmitter
    b. Release of Ach by vagus nerve stimulates heart rate
    c. Dilation of pupils and respiratory tubes is due to parasympathetic stimulation
    d. All autonomic neurons are located in the spinal cord
    e. None of the above

11. Megakaryocytes are stem cells for blood cells in the red bone marrow. Following their maturation, megakaryocytes first enter the blood stream and then connective tissue to form blood clots.
    a. Both sentences are false
    b. Both sentences are correct
    c. The first sentence is true but the second sentence is false
    d. The first sentence is false but the second sentence is true

12. After the body has experienced "fight or flight" and there is no longer danger, the following changes would take place EXCEPT:
    a. Constriction of pupils
    b. Increased release of acetylcholine in various organs
    c. Release of increased amounts of epinephrine and norepinephrine (adrenaline)
    d. Increased function in the digestive organs
13. Which sequence is correct for the following events in blood clotting?
   1. Break in the blood vessel wall and platelet aggregation
   2. Clot retraction and clot dissolution
   3. Formation of thromboplastin or tissue factor
   4. Conversion of prothrombin to thrombin

   a. 3, 4, 1, 2
   b. 1, 3, 4, 2
   c. 4, 3, 1, 2
   d. 3, 2, 1, 4
   e. 3, 4, 2, 1

14. Which of the following word combinations is correct concerning blood cells?
   a. Hemopoiesis in fetus – liver
   b. Erythrocytes - myoglobin
   c. Erythropoietin – tissue factor for blood clotting
   d. Megakaryocytes – capillaries

15. Which statements about leukocytes are correct?
   a. Neutrophils are phagocytic and the most numerous of all white blood cells.
   b. Monocytes function in phagocytosis.
   c. Eosinophils increase in number when parasitic invasion occurs.
   d. Basophils have action similar to mast cells, that is, they contain histamine
   e. All of the above are correct.

16. Clotting of blood can be influenced by the following factors.
   1. Absence of calcium
   2. Presence of platelets
   3. Rough walls of the blood vessels

   a. 1 only
   b. 2 only
   c. 3 only
   d. 1 and 3
   e. 1, 2 and 3

17. Blood flow through the heart stops momentarily during:
   a. Isovolumetric contraction
   b. Isovolumetric relaxation
   c. Atrial systole
   d. Ventricular systole
   e. A & B
18. The blood cells that are found in the loose connective tissue of the body perform primarily the following functions:
   a. Sites for oxygen storage
   b. Phagocytosis
   c. Blood clotting
   d. Stem cell formation

19. When the appearance of T wave is interrupted or altered, the problem would most likely be with the:
   a. Depolarization of atria
   b. Depolarization of ventricle
   c. Repolarization of ventricle
   d. Repolarization of atria

20. During isovolumetric relaxation, valves to both ventricles are closed. Meanwhile, pressure in both ventricles during this time continues to decrease.
   a. Both sentences are true
   b. Both sentences are false
   c. The first sentence is true but the second sentence is false
   d. The first sentence is false but the second sentence is true

21. Red blood cells enhance their oxygen carrying capacity by:
   a. Increasing the cell size
   b. Getting rid of the nucleus
   c. Increasing hemoglobing content of the cytoplasm
   d. Increasing their secretory activities
   e. Two of the above

22. Which of the following statements about nerve tracts is INCORRECT?
   a. Lateral spinothalamic tracts remain uncrossed until they synapse with motor neurons
   b. Fasciculus gracilis and fasciculus cuneatus are uncrossed, sensory fibers in the spinal cord
   c. Third order neurons for spinothalamic tracts are located in the thalamus
   d. Internal capsule serves as a passageway for sensory fibers to the cortex

23. Calcium is an essential ion for muscular contraction and function. Removing calcium from the blood will increase or accelerate blood clotting time.
   a. The first sentence is true but the second sentence is false
   b. The first and the second sentence are true
   c. The first sentence is false, but the second sentence is true
   d. Both sentences are false
24. When a person steps on a sharp object, a complex reflex is initiated. In this type of a reflex, the following events occur:
   a. Motor neurons to the flexor muscles on the ipsilateral side are stimulated
   b. Motor neurons to the flexor muscles on the ipsilateral side are inhibited
   c. Motor neurons to the extensor muscles on the ipsilateral side are inhibited
   d. Motor neurons to the flexor muscles on the contralateral side are stimulated

25. Almost all sensory information crosses over to the opposite side of the body before reaching the cortex. On the other hand, only 15% of the motor axons cross over to the opposite side of the body to effect the muscle functions.
   a. Both sentences are true
   b. Both sentences are false
   c. The first sentence is true but the second sentence is false
   d. The first sentence is false but the second sentence is false