Zoology 120 - Human Anatomy
First Lecture Exam
September 15, 1999

Name: ________________________________

Laboratory Time: ________________________________

Instructions:

1. 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.

2. Write your ID Number on the answer sheet.

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. The normal level of structural organization in the body is from cell to tissues, tissues to organs, organs to systems, and systems to organism. At the cellular level, undifferentiated cells would transform into differentiated cells.
   a. the first sentence is correct but the second sentence is false.
   b. the first sentence is false but the second sentence is correct
   c. both sentences are correct
   d. both sentences are false

2. The cell shape is usually related to its:
   a. location
   b. function
   c. life span
   d. origin
   e. dependability

3. Which statement is correct about the cells in the human body?
   a. all cells have nuclei
   b. all cells have similar life span
   c. all cells are differentiated
   d. two of the statements are correct
   e. no statement is correct

Match the below-listed terms with the statements in questions No. 4 through 8. The listed answers can be used once, several times, or not used at all.
   a. cholesterol
   b. integral protein
   c. phospholipid bilayer
   d. peripheral protein
   e. fluid mosaic

4. Cell membrane component that can act as receptor for specific molecules.

5. Allows for passage of certain molecules into the cell interior

6. Causes the cell membrane to become stiffer

7. It is the major component of a cell membrane

8. Plays an important role as a transporter or a carrier molecule in the cell membrane

9. Which of the below-listed organs would NOT have stem cells or replacement cells?
   a. bone
   b. muscle
   c. cartilage
   d. skin
   e. stomach
10. The cytoplasm of a cell contains a variety of essential organelles. The number of given organelles that are present in the cell cytoplasm reflect the function of that cell.
   a. both sentences are correct
   b. both sentences are false
   c. first sentence is true but the second sentence is false
   d. first sentence is false but the second sentence is true

11. What is the correct sequence of events in protein synthesis?
   a. secretory vesicle, Golgi apparatus, granular endoplasmic reticulum, ribosomes
   b. ribosomes, granular endoplasmic reticulum, Golgi apparatus, secretory vesicle
   c. Golgi apparatus, granular endoplasmic reticulum, secretory vesicle, ribosomes
   d. secretory granule, lysosomal action, proteins, ribosomes

11. Cytoskeleton of a given cell consists of the following structure(s).
   a. individual cytoplasm organelles
   b. cilia and microvilli
   c. microfilaments and microtubules
   d. elastic and reticular fibers
   e. connective tissue fibers and microfilaments

12. Which of the following influences the diffusion rate of a substance into the cell?
   a. concentration gradient
   b. size of the molecule
   c. presence of transporter or carrier molecule
   d. lipid solubility
   e. all of the above

13. What structure allows for rapid passage of information between cells?
   a. microtubules
   b. gap junctions
   c. integral proteins
   d. microfilaments
   e. glycoproteins

14. In a metabolically active cell, entrance of glucose, amino acids, and fatty acids into the cell interior would produce most energy when:
   a. lactic acid is formed
   b. mitochondria are involved in cellular respiration
   c. liver alters lactic acid to pyruvic acid
   d. oxygen is not involved in the process

15. Diffusion of substances to cells and tissues would be best when the epithelium is:
   a. stratified
   b. simple squamous
   c. transitional
   d. lined with microvilli
15. Transporting particles or cells across a cell surface would require the presence of:
   a. microvilli
   b. microtubules
   c. gap junctions
   d. cilia
   e. hairs

16. When a bone develops directly from osteoblasts without cartilage replacement, such bone could be represented by:
   a. a long bone
   b. any bone in the body
   c. humerus and radius
   d. skull bone

17. Bone growth in length occurs in which region of the bone?
   a. diaphysis
   b. epiphysis
   c. epiphyseal plate
   d. primary center of ossification
   e. secondary center of ossification

18. When a bone is broken, the initial healing process would include first a formation of:
   a. fibrocartilage model
   b. intramembranous bone
   c. connective tissue
   d. soft bony material

19. The muscle that is found in the wall of the heart is:
   a. involuntary, striated
   b. involuntary, non-striated
   c. voluntary, striated
   d. involuntary, smooth

20. The striated appearance of each skeletal muscle fiber is due to the:
   a. actin and myosin arrangement in the sarcomere
   b. regular myofibril alignment
   c. regular myofiber arrangement
   d. T-tubules alignment in the sarcoplasm

21. Endochondral ossification refers to the formation of bone from __________ while intramembranous ossification refers to the formation of bone from __________.
   a. bony tissue, cartilage
   b. cartilage model, mesenchyme tissue
   c. embryo model, broken bone
   d. fibrocartilage, hyaline cartilage
   e. existing bone, remodeled bone
22. This structure stores calcium in the skeletal muscle fibers.
   a. sarcoplasmic reticulum
   b. sarcoplasm
   c. T-tubule
   d. sarcomere
   e. microtubule

23. Lack of which structure in each sarcomere will destabilize myosin filaments?
   a. troponin
   b. tropomyosin
   c. titin
   d. myosin
   e. actin

24. The action of parathyroid hormone is to stimulate bone destruction and release of calcium into the blood. Surgical removal of parathyroid gland from the body would stabilize bone development and increase bone size.
   a. both sentences are correct
   b. first sentence is correct but the second sentence is false
   c. both sentences are false
   d. first sentence is false but the second sentence is correct

25. Today, onset of osteoporosis can be delayed or prevented in the older individuals by:
   a. bed rest and decreased activity
   b. decreasing vitamin D intake
   c. increasing exercise and calcium intake
   d. increasing fluid intake
   e. decreasing calcium in the diet