Section I – True/False (explain if false)

_____ The mitochondria is the site of energy production in the cell. T

_____ The correct order of structural organization is: chemical, cells, tissues, organs, organisms, organ systems. F- swap Organism and organ system

_____ Rostral means "toward the tail." F - Towards the nose

_____ Palmar orientation refers to the walking surface of the front limb. T

_____ Homeostasis means the complete elimination of change in the body. F

- Maintaining balance not eliminating change

_____ Positive feedback loops reduce the original stimulus and bring the body back to equilibrium. F - Amplifies a stimulus

_____ The ribs are medial to the lungs. F

- Lateral

_____ The fetlock is proximal to the hoof. T

_____ The dorsal cavity in animals contains both the cranial and spinal cavities. T

_____ Somatic cells reproduce through meiosis. F

- Somatic cells use mitosis

Section II – Multiple Choice

Which connective tissue connects muscle to bone and expresses locomotion?

a) Tendons
b) Ligaments
c) Cartilage
d) Areolar tissue

Which plane divides the body into left and right halves?

a) Transverse
b) Sagittal
c) Dorsal
d) Frontal

Which of the following is not a class of tissue?
a) Epithelial
b) Connective
c) Nervous
d) Membranes

Which of the following best describes physiology?
a) The study of structure of the body
b) The study of tissues and cells with a microscope
c) The study of function of the body and its parts
d) The classification of bones

Which of the following is a homologous structure?
a) Bird wings and insect wings
b) Front Cat leg bones and human arm bones
c) Fish gills and human lungs
d) Cow horns and rhino horns

Which type of epithelial cell is taller than wide and often found in the digestive tract?
a) Cuboidal
b) Columnar
c) Squamous
d) Transitional

Which of the following is NOT a necessary life function?
a) Maintaining balance
b) Excretion
c) Reflexes
d) Atmospheric pressure

Which of the following is avascular?
a) Muscle tissue
b) Nervous tissue
c) Epithelial tissue
d) Both b and c

Which connective tissue protects the articulating surfaces of long bones?
a) Bone

b) Cartilage
c) Adipose tissue
d) Dense regular connective tissue

The cell membrane is primarily made of:
a) Carbohydrates
b) Nucleotides
c) Phospholipid bilayer
d) Polypeptides

Which epithelial tissue appears multilayered but is actually one layer?
a) Stratified squamous
b) Transitional
c) Simple columnar
d) Pseudostratified columnar

“Oseo” refers to:
a) Bone
b) Muscle
c) Nerve
d) Fat

Which feedback mechanism downregulates or counteracts the stimulus?
a) Positive feedback
b) Negative feedback
c) Homeostatic imbalance
d) Neutral feedback

Which loose connective tissue is classified as CT proper?
a) Adipose
b) Areolar
c) Reticular
d) All of the above

Section III – Matching
Match the term with its best definition/association:

A. Ligaments
B. Endocrine glands
C. Cartilage
D. Osteoblasts
E. Adipose tissue
F. Areolar tissue
G. Reticular fibers
H. Serous membranes

_____ Loose CT proper found under skin and around organs - E

_____ Bone-forming cells - D

_____ Found in joint coverings, kidneys, liver, and spleen - F

_____ Connect bone to bone, stabilizing locomotion - A

_____ Net-like collagen fiber framework - G

_____ Ductless glands that secrete hormones - B

_____ Covers thoracic, abdominal, and pelvic cavities - H

_____ Protects articulating surfaces of long bones - C

Section IV – Short Answer

Explain the difference between positive and negative feedback loops. Give one example of each. - Positive amplifies a stimulus, Negative reduces a stimulus

Why are epithelial tissues considered avascular, and how do they still receive nutrients?

- ET have no vascularity, they receive nutrients through diffusion from the connective tissue, basal layer

What are two ways you can classify glands

- endocrine = ductless gland that produces and secretes hormones
- Exocrine = unicellular and multicellular that excrete fluids

What are the two types of bones?

- Cancellous and Compact

What are the functions of Cartilage?

- Shock Absorption, Protect, Connect

What is the function of Osseous Tissue?

- To Connect, Support, Increase Locomotion, and Protect

There are three types of Muscle Tissue: what are they and what are their Functions?

- Cardiac, pump/move blood
- Smooth, internal body movement
- Skelatal, Increases locomotion

Define proximal and distal. Provide an example in relation to an animal limb.

- Proximal = closer to body
- Distal = further from a body

What are two characteristics of nervous tissue?

- Avascular, can't heal, responds to stimuli

Why is reproduction considered the “least necessary” function of life, yet still important for species survival?

- Takes a lot of energy and nutrients to maintain reproductive success, important because it ensures continuation of the species

What are the types of tissues?

- Epithelial, Connective, Muscle and Nervous

What are the 4 types of Connective Tissue?

- Proper, Dense, Cartilage, and Blood

What are the 3 types of fibers found in Connective Tissue?

- Collagen, Elastic, and Reticular

Section V – Extended Response

What are the properties of a connective tissue ?

- Deprived from mesenchymal cell
- Inverted and Vascular
- Cell Poor but Cell Diverse
- Has a ECM: Ground Substance and Extracellular Fibers
- Dense rigid structures, but can be flexible and fluid
- Serves to connect, serve and protect.

Describe the regeneration process of epithelial tissue.

- All ET cells begin in the basal layer as cuboidal cells, a nutrient rich layer, which connects to the CT, which allows for active mitosis
- As cells duplicate they begin to push upward to the apical layer, as they push up cytoplasm is squeezed out of them making them squamous cell in the apical layer
- This happens because of mechanical and chemical stressors

Is blood classified as a connective tissue, why?

- Yes, deprived from mesenchymal cells
- Has diverse blood cells, cell diverse
- Surrounded by fluid matrix ECM (plasma)
- Has protein couple molecules (allows for clotting factors)
- Vascular; is the vascularity
- Protects through WBC

What is the keratinization process?

- Cells fill with granules of keratin in the basal layer then dry out as they reach the apical layer.

Explain the importance of homeostasis in animal physiology. What happens if homeostasis is disrupted?

- Is chemical equilibrium maintained by the body
- Doesn't allow for the maintenance of bodily systems, results in a stressed animal, thai result in lower production values.

List the five survival needs of animals. Which is most important and why?

- Nutrient, Oxygen, Water, Normal Body Temperature, Atmospheric Pressure
- Water is the most important

Compare and contrast epithelial tissue and connective tissue in terms of structure, function, and location

- ET, tightly cell dense, not diverse, avascular functions to cover, line and protect, sections and absorptions, Ex: Skin
- CT, loose cells, but diverse, covers protects and supports, vascular and innervated, has ECM Ex: Blood, Bone

Name as many Connective Tissue Cells and their Functions.