**Unit 5 Exam**

**Animal Growth and Performance**

**Definitions (1pt each)**

1. Growth - The general or normal expansion of size as produced by the accretion of tissues similar to that of the original tissue or organ
2. Myofibrillogenesis – the creation of myofibrils
3. Muscle growth – postnatally is an increase in muscle fiber size
4. Hormone action - Hormones act in an endocrine manner when secreted by cells and then transmitted via the bloodstream to act on distant target cells
5. Compensatory growth - growth exhibited by an animal after a period of nutritional stress
6. Totipotent - ability to become any cell in the entire body
7. Determination- process in which a previously undifferentiated cell is already programmed to become a specific cell type
8. Differentiation- process by which a less specialized cell develops or matures to possess a more distinct form and function
9. Osteoclasts – involved in bone reabsorption (breakdown) and remodeling.
10. Maturity - is the point in time when an animal reaches its highest level of complexity or development
11. Insulin – increases the storage of glucose, fatty acids, and glycogen
12. Glucagon – pulls glucose and glycogen from the blood stream

**T/F (1pt each)**

1. An increase in muscle fiber number occurs prenatally T
2. An increase in muscle size number occurs prenatally F
3. An intrafasicularly terminating fibers does not extend the entire length of the muscle T
4. As we enter the fattening stage of the growth curve we slow growth of other tissues, leaving more energy to be stored as fats T
5. Animals exposed to low temperature will mobilize adipose tissue to support heat production. T
6. At high temperatures feed intake is increased so as to inhibit heat producing processes. F
7. Glucagon and Insulin act on a positive feedback system F

**Matching (1pt each)**

1. Simple – D
2. Squamous – AE
3. Epithelium – AD
4. Connective – A
5. Muscle – E
6. Stratified – B
7. Cuboidal – AC
8. Columnar – AB
9. Nervous – C

a. Provides structural framework for the animal

b. Multiple Layers

c. Made of glial cells

d. Single Layer

e. Functions in locomotion and breathing

ab. Shaped like columns

ac. Shaped like squares

ad. Thin layer of tissue that covers all free surfaces of the body

ae. Thin and flat

**Multiple Choice (2pts each)**

1. Tissues are classified by their:
2. Size
3. Shape
4. Number
5. A & B
6. B & C
7. The fetal phase is characterized by
8. A dramatic increase in size of existing organs
9. Tissue differentiation
10. Cells maintain totipotency
11. Attachment of the placenta to the uterine wall
12. Embryonic phase is characterized by
13. A dramatic increase in size of existing organs
14. Tissue differentiation
15. Cells maintain totipotency
16. Attachment of the placenta to the uterine wall
17. Both b&d
18. The ovum phase is characterized by
19. A dramatic increase in size of existing organs
20. Tissue differentiation
21. Cells maintain totipotency
22. Attachment of the placenta to the uterine wall
23. Both b&d
24. Brown fat is important in the neonate because it
25. Produces energy
26. Promotes a healthy digestive system
27. Generates heat
28. Helps improve heart health
29. A triglyceride structure includes
30. A glycerol backbone an one fatty acid
31. A glycerol backbone an two fatty acids
32. A glycerol backbone an three fatty acids
33. A glycerol backbone an four fatty acids
34. Endochondral ossification includes
    1. Ossification from a cartilage template
    2. Ossification in the absence of a cartilage template
    3. Depends on the situation
    4. None of the above
35. Intramembranous ossification includes
    1. Ossification from a cartilage template
    2. Ossification in the absence of a cartilage template
    3. Depends on the situation
    4. None of the above
36. Muscle changes in carcass composition
    1. Increases at a decreasing rate
    2. Fastest growing during early life and post weaning, yet decreases with time
    3. Fastest growing at physiological maturity
    4. None of the above
37. Bone changes in carcass composition
    1. Increases at a decreasing rate
    2. Fastest growing during early life and post weaning, yet decreases with time
    3. Fastest growing at physiological maturity
    4. None of the above
38. Fat changes in carcass composition
    1. Increases at a decreasing rate
    2. Fastest growing during early life and post weaning, yet decreases with time
    3. Fastest growing at physiological maturity
    4. None of the above
39. Androgens synthesis induces
    1. the development of mature male characteristics such as: larger muscles in the forequarter, neck and crest region
    2. maturation of repro tract, female behavior, mammary development
40. Estrogen synthesis induces
    1. the development of mature male characteristics such as: larger muscles in the forequarter, neck and crest region
    2. maturation of repro tract, female behavior, mammary development
41. What is NOT an effect of epinephrine
    1. Mobilization of glycogen for energy
    2. Increased heart rate
    3. Increased blood flow
    4. Increased body temperature
    5. All are an effect

**Short Answer**

Compare are contrast true growth and fattening (4pts)

* True growth – increase in the amount of muscle and bone
* Fattening – increase in the accumulation of fat
* New calf has true growth
* Fattening occurs at the end of a life stage

What are some of the differences in animal growth from the past and present? (6pts)

Past

* Smaller/fatter/lighter muscled

Present

* Taller/ leaner/heavier muscled

What are the four fat depots? (4pts)

Visceral

Subcutaneous

Intermuscular

Intramuscular

What are the three shapes of bone and where are they found? (6pts)

Long – Arm and leg

Irregular – Pelvis and vertebrae

Flat – Skull

What are two purposes for feeding antibacterial feed additives? (4pts)

Commonly fed to cattle because of increased growth efficiency

Alter the cell membrane properties and play a major role in altering microbial populations in the digestive system

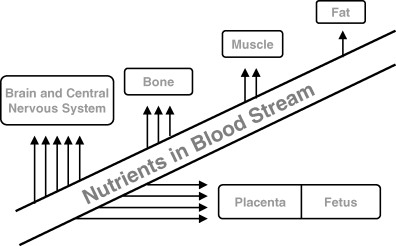
Change the population of metabolism of rumen microbes

Can be used as a coccidio stat (anticoccidial drug)

Improves feed conversion

**Graph/Draw**

Draw a flow chart explaining nutrient partitioning (7pts)



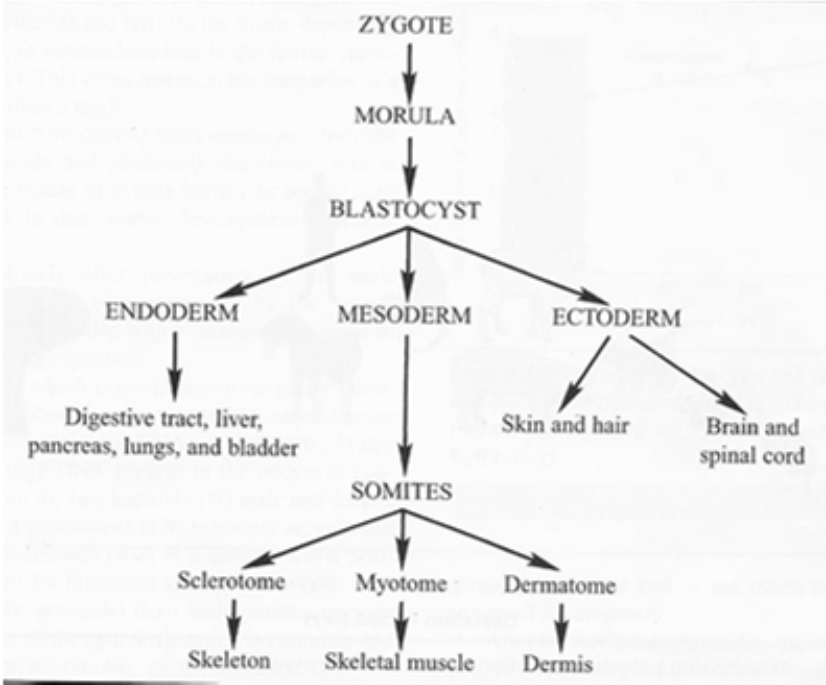
Draw a basic growth curve. Include muscle, bone, and fat. (3pts)

Fat

Muscle

Bone

Draw a flow chart explaining somitogenesis (10pts)



Bonus

Callipyge means – beautiful buttocks in Greek