Mock Exam 2

Name 5 out of the 6 factors that affect digestibility:

1) Teeth, Age, Enzymes
2) Disease/Parasites
3) Feed Source
4) Level of feed intake
5) Rate of passage
6) Nutrient excess or Deficiency

What do Enzymes require to be Active?

A) Specific PH
B) High Glucose levels
C) Temperature
D) Option A & C
E) None of the above

Which of the following describes Physical digestion?

A) Hydrolysis
B) Enzymatic breakdown
C) Mastication

Define Digestibility:

Measure of the amount of nutrients going in and coming out

Write the formula for the Digestion Coefficient:

$$\frac{(\text{Weight of feed} \times \%\ \text{Nutrients in feed}) - (\text{Weight of feces} \times \%\ \text{Nutrients in feces})}{\text{Weight of feed} \times \%\ \text{Nutrients in feed}}$$

Name at least 4 Sources of error in a digestibility trial:

1) Enzymes secreted in GI tract
2) Nutrients of bacteria origin
3) Nutrients from epithelium cells
4) Mineral secretions into GI tract
5) Feed Waste and spillage
6) Errors in proximate analysis

Which describes **Ileal** digestibility?

A) Measured by tracking feed disappearance at the mouth
B) Collected at the end of the small intestine, bypasses microbial fermentation in L.I.
C) Does not take into account losses/Gains from fermentation, sloughed cells & enzymes
D) Measure enzyme and sloughed cell contribution by feeding nutrient free diet, requires cannula

Which describes **Total** digestibility?

A) Measured by tracking feed disappearance at the mouth
B) Collected at the end of the small intestine, bypasses microbial fermentation in L.I.
C) Does not take into account losses/Gains from fermentation, sloughed cells & enzymes
D) Measure enzyme and sloughed cell contribution by feeding nutrient free diet, requires cannula

Which describes **true** Digestibility?

A) Measured by tracking feed disappearance at the mouth
B) Collected at the end of the small intestine, bypasses microbial fermentation in L.I.
C) Does not take into account losses/Gains from fermentation, sloughed cells & enzymes
D) Measure enzyme and sloughed cell contribution by feeding nutrient free diet, requires cannula

Break down the Nutrient Molecules:

Large Nutrient Molecules		Small Molecules
Carbohydrates	-------> Polysaccharides	-------> Monosaccharides
Lipids	--------> Triglycerides	----------> FFA and glycerol
Protein	--------> Peptides	-----------> Amino acids

Absorption depends on:

A) Size of molecule
B) Chemical properties
C) Site of absorption
D) All of the above

What are 4 functions of water:

A) Transport of Nutrients
B) Solvent for chemical reaction
C) Temperature control
D) Lubrication

What are 4 water sources

1) drinking water
2) Water in or on feed
3) Metabolic water/ water of oxidation
4) Condensation reaction that yield water
5) Preformed water in tissues

True or False: Unsaturated have a Double bond

A) True
B) False

What is pinocytosis?

A) Active transport of ions against a gradient
B) Absorption of nutrients through simple diffusion
C) Invagination of the cell membrane and surrounding the material
D) Movement of molecules from a region of high concentration to low without expenditure of energy

Fill in the blank:

< 5000 PPM total dissolved solids (TDS)

< 3000 PPM sulfates

< 100-200 PPM nitrates

What is metabolic water

A) Water of oxidation
B) Water that helps metabolize
C) Water stored in muscles
D) Water stored in fat

Intracellular fluids account for:
40 % of total body water

Extracellular fluids account for:
33 % of total body water

What is bioavailability?

The proportion of a nutrient that is digested, absorbed, and available for use or storage in the body

What is digestion?

The breakdown of food into smaller components that can be absorbed by the body.

What describes facilitated diffusion:

A) Involves a specific carrier compound
B) Requires ATP for every molecule moved
C) Moves molecules from low concentration to high
D) Breakdown of molecules to release energy

What is absorption?

Passage of food or nutrients from the GI tract into the blood stream

Which term describes the **breakdown** of molecules to release energy?

A. Anabolism
B. Catabolism
C. Diffusion
D. Digestion

Which process describes the **movement of molecules from a region of high concentration to low concentration without the expenditure of energy**?

A. Active transport
B. Diffusion
C. Pinocytosis
D. Osmosis

Which of the following requires energy to move molecules **against a concentration gradient**?

A. Passive diffusion
B. Pinocytosis
C. Active transport
D. Anabolism

The **sum of all processes by which an organism assimilates food**, including digestion and absorption, for maintenance and growth is:

A. Catabolism
B. Anabolism
C. Nutrition
D. Digestion

An **increase in cell size** is called:

A. Hyperplasia
B. Hypertrophy
C. Maintenance
D. Anabolism

The **increase in cell number** is called:

A. Hypertrophy
B. Hyperplasia
C. Anabolism
D. Catabolism

Which nutrients are **required in the diet because they cannot be synthesized in the body in sufficient quantities**?

A. Maintenance nutrients
B. Essential nutrients
C. Catabolic nutrients
D. Metabolic nutrients

Amount of energy required to raise 1 gm H_2O by 1 degree C
A) Bomb Calorimeter
B) Gross Energy
C) Calorie
D) Proteins

Measures the complete transduction of chemical energy to heat
A) Carbohydrates
B) Fats
C) Bomb Calorimeter
D) Maintenance

Total energy feedstuff can provide
A) Digestible Energy
B) Proteins
C) Gross Energy
D) Heat Increment

9.4 kcal/g, provides most amount of energy
A) Carbohydrates
B) Proteins
C) Fats
D) Structural Carbohydrates

4.1 kcal/g
A) Gross Energy
B) Proteins
C) Carbohydrates
D) Fats

5.7 kcal/g, requires more energy to be broken down
A) Digestible Energy
B) Proteins
C) Fats
D) Bomb Calorimeter

Includes sugars and starches, within the cell, corn, alpha bonds, broken through enzymatic digestion
A) Structural Carbohydrates
B) Digestible Energy
C) Non-Structural Carbohydrates
D) Heat Increment

Use these clues to identify the term: Includes cellulose and hemicellulose, needs fermentation to be digested, beta bonds, straw, outside the cells

A) Non-Structural Carbohydrates
B) Proteins
C) Structural Carbohydrates
D) Carbohydrates

What is actually used by the animal:
A) Net Energy
B) Total Digestible Nutrients
C) Digestible Energy
D) Maintenance

Determines amount of energy available or digested by the animal
A) DEE
B) TDN
C) Heat Increment
D) Gross Energy

A general measure of the nutritive value: = DCP + DNFE + DCF + 2.25(DEE)
A) Digestible Crude Fiber
B) Total Digestible Nutrients
C) Net Energy
D) Metabolizable Energy

Measure of non-structural carbohydrates (sugar and starch)
A) DNFE
B) Structural Carbohydrates
C) DEE
D) Net Energy

Frequently used to describe energy for poultry; metabolized but takes into account heat increment
A) Digestible Energy
B) Net Energy
C) Heat Increment
D) Gross Energy

Heat production during digestion and absorption; heat produced as a result of **fermentation**
A) Net Energy
B) Heat Increment
C) Gross Energy
D) Bomb Calorimeter

Problems with TDN:

does not take into account losses in urine, gas production, and heat loss; these losses are greater in roughages than concentrates; non-ruminants don’t utilize fiber as well as ruminants