1. Explain why practical nutrition is an inexact science. (2 points)
   Most of it is done out in the field and typically can't account for heat losses (CHF) or digestibility. It is also difficult to know what the animal's nutritional needs are because it varies from animal to animal—and most of the nutritional information comes from a chart that is specific to a group or species.

2. Typically for feeds net energy and TDN are derived from what? (1 point)
   Nitrogen = 6.25 Digestible Nitrogen
   Chemical analysis - ADF
   Digestible energy

3. What dietary constituents (nutrients) do NOT contain energy? (1 point)
   Water, minerals

4. What energy system is widely used for nonruminants but not poultry? (1 point)
   NE - Net energy - doesn't really count for CH4 or urinary
   DE - Digestible Energy

5. Give an example of a species for which there are specific requirements for amino acids. (1 point)
   Humans

6. Define maintenance energy requirement. (1 point)
   Energy needed for zero energy balance - meaning no gain and no loss.
   Energy needed just to support life.

7. What is metabolic body weight? (1 point)
   The weight of the animal in terms of maintenance
   - not feedout
   - not feeding
   - an animal with no gain (growth) or losses

8. What is the thermoneutral zone? (1 point)
   Environmental temperature where animal doesn't need to change its temperature unless it is production driven, such as from milk or meat production. Also, the animal is not using excess energy to maintain itself.

9. What 2 nutrients does the developing conceptus need most? (1 point)
   Glucose
   Amino acids