(10) 1. Let's look at the famous Snack and Smack’em cookies. Are they a good buy? One way to tell is if they have less digestible nutrients than total consumed. In the ingredient statement on the Snack and Smack’em by the U of I, one finds the following ingredients: Protein 8%; Fat 22%; Fiber 15%; and NFE(carbohydrates) 55%. If the protein is 60% digestible, Fat 98% digestible, Fiber 15% digestible and NFE 98% digestible, what is the Total Digestible Nutrients (TDN) of this food source? Show work.

\[
\text{TDN} = \text{Protein} + \text{Fat} + \text{Fiber} + \text{NFE} \times \text{Digestibility} 
\]

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(6) 2. Profitability of a cow herd is based on three things: 1. feed cost, 2. milk price and 3. manpower and effort. The mathematical formula for profitability then becomes?

\[
\text{Profitability} = \text{Feed Cost} - \text{Milk Revenue} - \text{Manpower Cost} 
\]

3

(15) 3. This is a multi-part question study it carefully. Digestion of carbohydrate is different in monogastric animals and polygastric. In the monogastric, where does it start and finish and what enzymes and other chemical media help it digest. Where and in what form is it absorbed. Lastly what bond is broken and how.

- It starts in the mouth in monogastric animals and an enzyme called amylase in saliva starts to break it down. Carbohydrate, containing and made in the small intestine, occurs in the monogastric stomach. When amylase from the pancreas is secreted intestinal lumen, \( \text{Lactase} \), along with enzymes breakdown lactose, other than maltose into two disaccharides. The glycemic or carbohydrate in the small intestine is broken down by the enzymes intestinal.
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(10) 4. The major breeds of beef cattle have changed in the US since the 1900's. Describe how and why.

Angus and Hereford were very prominent because they have been bred by US farmers over many years to develop the type of beef desired by consumers. These are the major breeds for beef due to the high variability of the breed. They breed well and are good for many purposes.

Overall, both Angus and Hereford are excellent breeds, but one is better to choose.

(6) 5. Water is a very important nutrient. What are three sources of water, the functions of water, and the amount of water needed daily?

Water is essential for hydration, fluid balance, enzyme activity, and metabolic processes. Water is necessary for the body to function properly and is essential for life. It is important to drink enough water to maintain proper hydration. The amount of water needed daily depends on many factors, including age, sex, weight, and activity level.

(8) 6. What are four classifications of carbohydrates?

Monosaccharides - 1 sugar
Disaccharides - 2 sugars
Polysaccharides - many sugars

(12) 7. Show by a drawing how two amino acid combine to form a dipeptide.
(6)8. Define a breed?

A breed is a group of animals that are characterized by specific characteristics that differentiate them from other groups.

(10)9. Improvements of breeds of cattle involve economic traits like reproductive performance and weaning weight. What are three goals for reproductive performance and why would one adjust weaning weight to a standard 205 days?

(16)10. Define:

a. Kemp - a type of sheep in which it will develop the right kind of wool and it won't feel.

b. Breed - a group of closely related individuals, all having similar characteristics.

C. Ovis Aries - the generic species name for sheep.

d. Hydrolysis - when water breaks down starch, sugars can be absorbed in the body.

e. Flushing - increase use protein intake in order to get them faster growth.

f. Proximate analysis - the amount of moisture content in food intake product.

G. Nutrition - how an animal uses nutrients to maintain and improve its body and life function.

h. Pedigree - an animal's ancestry, usually kept as records.

(3)Bonus: Briefly tell me what the terms EPD (Expected Progeny Differences) and Accuracy mean.

EPDs are what the animal will bring the added of or performance. It's also used to estimate the traits of the animal, how can you figure out the EPD it based on the animal's ancestry of others.