



(The exam is composed of 9 pages)

Answer all the following questions:

First Question: (10 Marks, evenly distributed)

Put the words s (or phrases) in the correct order and write the statements.

1. that / the food / the muscular / the GIT / contractions / throughout / Peristalsis / is / move
2. for / necessary / chemical / Nutrients / are / substances / life
3. for / are / proteins / fats / energy-yielding / Carbohydrates / and / nutrients / the / animal
4. is / Cellulose / feedstuffs / the fibrous / a major component of / portion / of
5. is / vitamin / that / poultry / synthesized by / Ascorbic acid / can be / a water-soluble
6. is / stored in / Starch / cereal grains / a polysaccharide / and / seeds / tubers
7. are / essential / Sodium / bile / and / gastric / juice / chloride / components / and / of
8. libitum / requirements / Poultry / their energy / to eat / tend / to satisfy / if fed / ad
9. are / hormones / All / proteins / and / enzymes / many
10. the water / temperature / poultry / by / High / intake / environmental / increases

The answer for the first question:

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

Second Question: (10 Marks, evenly distributed)

Underline the correct answer in brackets to complete the following sentences.

1. The amount of feed consumed by the laying hen to produce a dozen eggs is called
(Efficiency of feed utilization / Egg production rate / Feed intake).
2. The organic compounds required in minute amounts for normal growth, production, reproduction, and health of an organism are referred to as (Proteins / Minerals / Vitamins).
3. The biologically and physiologically required amino acids by poultry include
(Essential amino acids / Semi-essential amino acids / All amino acids).
4. Oils are rich in (Saturated fatty acids / Unsaturated fatty acids / Cholesterol).
5. The weight gain per unit weight of protein consumed is known as
(Biological Value of Protein / Protein Efficiency Ratio / Net Protein Retention).
6. Soybean meal, sunflower meal, cotton seed meal and sesame meal are some examples of
(Plant proteins / Animal proteins / Synthetic proteins).
7. are amino acids that can be synthesized in sufficient amounts by animals and therefore they are not necessary to be added in the diet. (Non-essential amino acids / Essential amino acids / Semi-essential amino acids).
8. Minerals required in small amounts by the animal are called
(Macro-minerals / Micro-minerals / Pollutants).
9. An acceptable ratio of Ca to non-phytate P (wt/wt) in laying hen diets is
(2: 1 / 8: 1 / 12: 1).
10. has an important function in the metabolism of carbohydrates and fats. (Ca / P / K).

Third Question: (10 Marks, evenly distributed)

Complete the following sentences using one word (or phrase) in each space.

1. is a polymer of glucose that can be digested by poultry.
2. is also a polymer of glucose but cannot be digested by poultry because they do not possess the enzyme cellulase in their digestive tracts.
3. are the principal energy sources for poultry.
4. is the essential fatty acid for poultry.
5. are the building blocks of body proteins.
6. is a very large number of processes in which nutrients are used by cells for building tissue, providing energy or regulating various functions.
7. are amino acids that can only be synthesized by the animal when its feed contains a surplus of their precursors.
8. is the minimum of energy expended in fasting, resting animal under optimal environmental conditions.

9. is a water-soluble vitamin that can be synthesized by poultry and therefore, it is not needed as an essential dietary nutrient.
10. is essential in digestion, metabolism and transport of nutrients and metabolites and waste products to and from all cells of the body.

Fourth Question: (12 Marks)

Part A (6 Marks): State whether of following sentences are false (×) or true (✓):

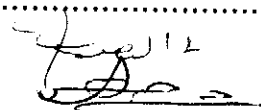
1. () Proteins can spare the use of carbohydrates for energy.
2. () Added dietary vitamin C is beneficial for birds reared under stress.
3. () Phytate-P present in plant feed ingredients is poorly digested by poultry.
4. () Both feed and water intakes of poultry decrease under heat stress conditions.
5. () Polysaccharides are polymers of more than 10 simple monosaccharides.
6. () When the N excreted exceeds N intake by the animal, it is in positive nitrogen balance

Part B (6 Marks): Give the scientific terms corresponding to these definitions:

1. The rate at which the feed nutrients is absorbed and utilized or retained within the animal's body.
2. Formation of glucose from lipids and proteins via intermediates (lactate, pyruvate, amino acids).
3. A balanced mixture of carefully selected feedstuffs that meet the nutrient requirements of an animal for optimal growth, reproduction and vital processes of life.
4. The process by which the end products of digestion pass through the intestinal mucosa into the blood or lymph.
5. An interaction between two or more nutrients, factors or substances that produces an effect greater than the sum of their individual effects.
6. Specific interactions in which the requirement for one essential amino acid, not necessarily the first limiting amino acid, is increased by addition of a structurally related amino acid to the diet.

The answer for the part B of the fourth question:

1.
2.
3.
4.
5.
6.



Fifth Question: (18 Marks): Discuss briefly only three of the following topics:

1. The relative importance of energy-yielding nutrients for poultry (6 Marks).
2. Factors affecting the voluntary feed intake in poultry (6 Marks).
3. Concept of essentiality of amino acids for poultry (6 Marks).
4. Evaluation of amino acid availability for poultry (6 Marks).
5. The response of poultry to water deprivation (6 Marks).
6. Nutrient requirements of broiler chicks (6 Marks).

The answer for the fifth question:

1. The relative importance of energy-yielding nutrients for poultry:

[illegible]

[illegible]

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 ۱۰۰۰
 ۱۰۰۰

3. Concept of essentiality of amino acids for poultry:

[illegible]

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5. The response of poultry to water deprivation:

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper is slightly tilted to the right. The top edge of the paper is slightly irregular, suggesting it might be from a notebook or a loose-leaf binder. The overall appearance is clean and professional.

[illegible]

Examiners:

A. H. Kaya

Rabie