

**UPSC CSE Subjective
For Veterinary Science**

ANIMAL NUTRITION

UNIT 8

- **Special features of poultry nutrition**
- **Nutrient requirements for meat and egg production and**
- **Formulation of rations for different classes of layers and broilers**

PYQ

1. **Discuss the nutrient requirement of poultry for meat and egg production? (2013)**
2. **Why are broilers and layers fed different types of rations? What are the similarities and dissimilarities in these two rations? (2016)**
3. **Write BIS specifications of nutrient requirements for chicken? (2018)**
4. **Describe the importance of calorie protein ratio in poultry?(2021)**
5. **Define essential, critical and limiting amino acids, enlist the factors affecting amino acid requirement in poultry? (2021)**
6. **Formulate an economic and balanced ration for laying hens using commonly available feed ingredients? (2021)**
7. **Describe the various steps for formulation of poultry broiler starter feed? (2022)**
8. **Describe nutritional characteristics of feed ingredients which are generally incorporated in formulation of poultry feed? (2023)**
9. **Differentiate between fatty liver and kidney syndrome(FLKS) and fatty liver and haemorrhagic syndrome ? (2018)**

Special features of poultry nutrition

- **High Metabolic Rate**
- **Unique Digestive System**
- **Monogastric Digestion**
- **High Protein Requirements**
- **Calcium Metabolism**
- **Egg Nutrient Enrichment**
- **Antibiotics and Growth Promoters**

Nutrient requirements for meat and egg production

- **BIS specifications of nutrient requirements for chicken:**
 - **Energy, Protein, Amino Acids, Vitamin, Minerals in Broiler, Layer & Breeders**
- **Formulation of rations for different classes of layers and broilers**
 - **Phase Feeding**
 - **Restricted Feeding**
- **Dietary manipulation for enhancing the nutritional quality of eggs**
 1. **Reducing Cholesterol Content**
 2. **Incorporating Omega-3 Fatty Acids**
 3. **Adding Vitamin E and Other Nutrients**
- **Calcium supplementation :**
 - **Calcium Requirement, Constant Calcium in Feed, Use of Calcium Grit**

Describe the various steps for the formulation of poultry broiler starter feed?

- 1. Determine the Target Age Range**
- 2. Establish Nutritional Requirements**
- 3. Select Feed Ingredients**
- 4. Balance Amino Acids**
- 5. Consider Additives**

Formulating Rations for Layers

- **Starter Ration for Pullets (Young Layers)**
- **Layer Ration for Peak Egg Production**
- **Layer Ration for Late Laying Phase**

Formulating Rations for Broiler

- **Starter Ration for Broiler Chicks**
- **Grower Ration for Broilers (4-6 weeks)**
- **Finisher Ration for Broilers (6-7 weeks)**

Types of Amino Acids

- **Essential Amino Acids**
- **Critical Amino Acids**
- **Limiting Amino Acids**
- **Factors Affecting Amino Acid Requirement in Poultry**
 - **Bird Species and Strain**
 - **Age and Growth Stage**
 - **Gender**
 - **Environmental Conditions**
 - **Dietary Ingredients**
- **Fatty Liver and Kidney Syndrome (FLKS) Vs Fatty Liver and Hemorrhagic Syndrome (FLHS)**

Why are broilers and layers fed different types of rations? What are the similarities and dissimilarities in these two rations?

- **Broilers**

1. **Purpose**
2. **High Protein**
3. **Energy-Dense**
4. **Lower Calcium**
5. **Limited Fiber**

- **Similarity**

1. **Vitamins and Minerals**
2. **Protein Sources**

- **Layer**

1. **Purpose**
2. **Moderate Protein**
3. **Higher Calcium**

- **Dissimilarity**

1. **Protein Content**
2. **Calcium Levels**
3. **Energy Density**