

Section A– 20 Marks

1. **ANIMAL NUTRITION** **20%**
- 1.1 Conventional and non-conventional feeds
 - 1.2 Nutritional contents of different species of pasture, fodder, fodder trees including indigenous species, agricultural and industrial by-products
 - 1.3 Anti-nutritional factors in feeds and fodders
 - 1.4 Different methods of nutritional analysis of livestock feeds and fodder
 - 1.5 Computation and evaluation of ration for different livestock and poultry species
 - 1.6 Utilization of wastes in animal feeding

Section B– 20 Marks

2. **PASTURE AND FODDER** **20%**
- 2.1 Soil fertility evaluation- soil testing, plant analysis, deficiency symptoms and biological test in relation to pasture and fodder species
 - 2.2 Soil organic matter and organic manure in relation to pasture and fodder species
 - 2.3 Agronomical management of tropical, sub-tropical and temperate species of grasses and legumes such as stylo, lucern, berseem, oat, rye grass, soybean, sorghum, paragrass, broomgrass, centro, napier, desmodium, vetch, clover, teosente, molasses, cowpea, velvet bean and kudzu etc.
 - 2.4 Agronomical management of fodder trees such as Badahar, Kutmiro, Tanki, Epil epil, Khannyo, Kimbu, Kabro, Pakhuri, Dabdabe, Bakaino etc.
 - 2.5 Pasture and rangeland management practices in different eco-zones
 - 2.6 Different methods of forage conservation- hay, silage and their nutritive values
 - 2.7 Utilization of crop residues – improvement of nutritive values
 - 2.8 Agro-forestry / Silvi-pasture in community and leasehold forestry, fruit orchard
 - 2.9 Principles and practices of forage seed production
 - 2.10 Seed (foundation and certified) production of different pasture and fodder species including fodder trees in different eco-zones
 - 2.11 Quality management of seed and methods of estimation

Section C– 30 Marks

3. **ANIMAL BREEDING AND REPRODUCTION** **20%**
- 3.1 Concept of genetic resistance to diseases and parasites
 - 3.2 Indigenous and exotic breeds of livestock and poultry and their characteristics
 - 3.3 Methods of selection- independent culling, tandem, and selection index
 - 3.4 Hormones of reproduction and their functions – estrous cycle, ovulation, fertilization, gestation and parturition; induction and synchronization of ovulation;
 - 3.5 Reproductive disorders and their corrective measures

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खुला र आन्तरिक प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

- 3.6 Collection, processing, evaluation and storage of warm and frozen semen
- 3.7 Artificial insemination technique, heat synchronization and pregnancy diagnosis
- 3.8 Embryo-transfer technology in livestock development
- 3.9 Formulation of breeding plan for livestock and poultry species

5. DAIRY 10%

- 5.1 Pasteurization and homogenization of milk
- 5.2 Standardization of milk, cream and other milk products
- 5.3 Methods of preparation, types, nutritive value of yoghurt, butter, ghee, cheese, paneer, khuwa, ice cream and chhurpi
- 5.4 Milk borne diseases in brief
- 5.5 Packaging and storing of milk and milk products
- 5.6 Development and project planning of mini dairy plant
- 5.7 Costing of different dairy products
- 5.8 Schedule for maintenance of mini dairy plants

Section D– 30 Marks

4. LIVESTOCK AND POULTRY MANAGEMENT 30%

4.1 Husbandry

- 4.1.1 Functions and tools of farm management
- 4.1.2 Management of different stages of animal (young, pregnant, lactating, dry etc)
- 4.1.3 Management of livestock and poultry breeding stocks
- 4.1.4 Handling and utilization of livestock and poultry farm wastes
- 4.1.5 Hatchery management- factors influencing hatching results
- 4.1.6 Management of chicks, growers and layers including broilers
- 4.1.7 Hygienic milk production

4.2 Animal Health

- 4.2.1 Sanitation and prophylactic measures
- 4.2.2 External and internal parasites - their control measures
- 4.2.3 Symptoms, prevention and control measures of common livestock and poultry diseases - scour, mastitis, H.S., FMD, Calf pneumonia, bloat, PPR, black quarter, enterotoxemia, foot rot, pox, swine fever, Ranikhet, Gamboro, Marex, CRD, etc.
- 4.2.4 Zoonotic diseases and their importance to public health

4.3 Livestock Marketing

- 4.3.1 Relationship between livestock production and marketing
- 4.3.2 Types of markets for livestock and livestock products
- 4.3.3 Factors affecting the livestock markets
- 4.3.4 Livestock market promotion and sustainable management
- 4.3.5 Economics of poultry (layers and broilers) farming
- 4.3.6 Economics of livestock (cattle, buffalo, goat, sheep, pig, and rabbit) farming

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द्वितीयपत्रका पाठ्यक्रमका एकाईहरूबाट सोधिने प्रश्नहरूको संख्या निम्नानुसार हुनेछ :

द्वितीय पत्रका खण्ड	A	B	C	D	
द्वितीय पत्रका एकाई	1	2	3	5	4
प्रश्न संख्या	2	2	2	1	3

विषयगत नमूना प्रश्नहरू (Sample questions)

1. Give stepwise pasteurization procedure for milk and cream
2. Explain the importance of crop residues in animal feeding and how would you improve the nutritive value of rice straw?
3. Write short notes on
 - a) Heat synchronization
 - b) Progeny testing