

प्रदेश लोक सेवा आयोग

प्रदेश नं. १, विराटनगर

स्थानीय सरकारी सेवा अन्तर्गत प्राविधिक तर्फ कृषि सेवा, भेरेरिनी समूह, छैठौं तहका पदहरूको खुला प्रतियोगितात्मक परीक्षाको पाठ्यक्रम

पाठ्यक्रमलाई निम्नानुसार विभाजन गरिएको छः

प्रथम चरण:-	लिखित परीक्षा (Written Examination)	पूर्णाङ्क :- २००
द्वितीय चरण:-	(क) सामूहिक परीक्षण	पूर्णाङ्क:- १०
	(ख) अन्तर्वार्ता	पूर्णाङ्क :- ३०

परीक्षा योजना (Examination Scheme)

१. प्रथम चरण:- लिखित परीक्षा (Written Examination)

पत्र	विषय	पूर्णाङ्क	उत्तीर्णाङ्क	परीक्षा प्रणाली		प्रश्न संख्या x अङ्क	समय
प्रथम	General Subject	१००	४०	वस्तुगत	बहुवैकल्पिक प्रश्न (MCQs)	१०० प्रश्न x १ अङ्क	१ घण्टा १५ मिनेट
द्वितीय	Technical Subject	१००	४०	विषयगत (Subjective)	छोटो उत्तर लामो उत्तर	४ प्रश्न x ५ अङ्क ८ प्रश्न x १० अङ्क	३ घण्टा

२. द्वितीय चरण:- सामूहिक परीक्षण र अन्तर्वार्ता (Group Test and Interview)

पत्र/विषय	पूर्णाङ्क	परीक्षा प्रणाली	समय
सामूहिक परीक्षण (Group Test)	१०	समूहमा व्यक्तिगत प्रस्तुती र सामूहिक छलफल (Individual Presentation in Group and Discussion)	३० मिनेट
अन्तर्वार्ता (Interview)	३०	मौखिक (Oral)	-

द्रष्टव्य :

- लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुनेछ ।
- प्रथमपत्र र द्वितीयपत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ ।
- वस्तुगत बहुवैकल्पिक (Multiple Choice) प्रश्नहरूको गलत उत्तर दिएमा प्रत्येक गलत उत्तर बापत २० प्रतिशत अङ्क कट्टा गरिनेछ । तर उत्तर नदिएमा त्यस बापत अङ्क दिइने छैन र अङ्क कट्टा पनि गरिने छैन ।
- बहुवैकल्पिक प्रश्नहरू हुने परीक्षामा कुनै पनि प्रकारको क्यालकुलेटर (Calculator), मोबाइल फोन वा अन्य विद्युतीय उपकरण प्रयोग गर्न पाइने छैन ।
- विषयगत प्रश्नहरूको हकमा तोकिएको अंकको एउटा लामो प्रश्न वा एउटै प्रश्नका दुई वा दुईभन्दा बढी भाग (Two or more parts of a single question) वा एउटा प्रश्न अन्तर्गत दुई वा बढी टिप्पणीहरू (Short notes) सोध्न सकिने छ ।
- द्वितीय पत्रमा (विषयगत प्रश्न हुनेको हकमा) प्रत्येक खण्डका लागि छुट्टाछुट्टै उत्तर पुस्तिकाहरू हुनेछन्। परिक्षार्थीले प्रत्येक खण्डका प्रश्नहरूको उत्तर सोही खण्डको उत्तर

पुस्तिकामा लेखुपर्नेछ ।

७ लिखित परीक्षामा सोधिने प्रश्न संख्या प्रथम पत्रको लागि यथासम्भव देहाय बमोजिम हुने।

प्रथम पत्रका एकाई	१	२	३	४	५
प्रश्न संख्या	१५	२५	४०	१०	१०

लिखित परीक्षामा सोधिने प्रश्न संख्या द्वितीय पत्रको लागि यथासम्भव देहाय बमोजिम हुनेछ।

द्वितीय पत्रका खण्ड	A		B	C
द्वितीय पत्रका एकाई	१	२	३	४
लामो उत्तर (८ प्रश्न x १० अङ्क)	२	१	३	२
छोटो उत्तर (४ प्रश्न x ५ अङ्क)	१	१	१	१

८ यस पाठ्यक्रम योजना अन्तर्गतका पत्र तथा विषयका विषयवस्तुमा जे सुकै लेखिएको भएता पनि पाठ्यक्रममा परेका कानून ऐन नियम तथा नीतिहरू परीक्षाको मिति भन्दा ३ महिना अगाडि (संशोधन भएका वा संशोधन भई हटाइएका वा थप गरी संशोधन भई) कायम रहेकालाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ ।

९ प्रथम चरणको परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र द्वितीय चरणको सामूहिक परीक्षण र अन्तर्वार्तामा सम्मिलित गराइनेछ ।

१० लिखित परीक्षा, अन्तिम चरणको सामूहिक परीक्षण र अन्तर्वार्ताको कुल अङ्क योगका आधारमा अन्तिम परीक्षाफल प्रकाशित गरिनेछ।

११ पाठ्यक्रम लागू मिति: २०७७/०९/१९

प्रदेश लोक सेवा आयोग
प्रदेश नं. १, विराटनगर
स्थानीय सरकारी सेवा अन्तर्गत प्राविधिक तर्फ कृषि सेवा, भेटरिनरी समूह, छैठौं तहका पदहरूको खुला
प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

प्रथम पत्र: General subject

- 1. Introduction 15 Marks**
- 1.1 History of livestock and fisheries sector development in Nepal
 - 1.2 Overview of Nepalese livestock sector: current status and scope
 - 1.3 Livestock statistics of Nepal and province 1
 - 1.4 Structure of livestock sector at federal, provincial and local levels
 - 1.5 Role of research in livestock sector development, Nepal Agricultural Research Council (NARC), its vision and functions
 - 1.6 Agricultural education systems in Nepal
 - 1.7 Public, private, NGOs, CBOS, co-operatives and farmer groups involvement in research, extension and education
 - 1.8 Participatory planning, monitoring, evaluation and feedback
 - 1.9 Planning, implementation, monitoring and evaluation of livestock projects
 - 1.10 Climate change and livestock sector
 - 1.11 Gender equity and social inclusion (GESI) and women's role in Nepalese agriculture
 - 1.12 Government planning, budgeting and accounting system
 - 1.13 Formulation process of policy, acts, rules, regulations and standards at local level
- 2. Legislations, plans, policies, strategies and regulatory functions 25 Marks**
- 2.1 The constitution of Nepal (Provisions related to Livestock)
 - 2.2 Local Government Operation Act, 2074
 - 2.3 Co-operation and inter-relation between Federal, Provincial and Local level governments
 - 2.4 Civil service act and regulation (Federal and provincial)
 - 2.5 Agriculture Development Strategy (ADS) (2015-2035)
 - 2.6 Animal Health and Livestock Services Act, 2055 and its regulation, 2056
 - 2.7 Animal Slaughterhouse and Meat inspection act, 2055 and its regulation, 2057
 - 2.8 Nepal Veterinary Council Act, 2055 and regulation, 2057
 - 2.9 Feed Act, 2033 and regulation, 2041
 - 2.10 Drug Act, 2035
 - 2.11 Poultry Policy, 2068
 - 2.12 Bird Flu Control Order, 2064
 - 2.13 Animal transportation standard, 2064
 - 2.14 कृषि व्यवसाय प्रवर्द्धन अनुदान कार्यविधि, २०७६ (प्रदेश नं. १)
 - 2.15 Livestock insurance policies and programs
 - 2.16 Livestock related national and provincial (province no. 1) periodic plans, policy, programs and projects

- 2.17 World organization for animal health (OIE), its objectives, structure, function, Terrestrial Animal health code, Aquatic animal health code
- 2.18 World Trade Organization (WTO): Sanitary and phytosanitary measures (SPS) and Technical barrier to trade (TBT)

3. Clinical subjects

40 Marks

3.1 Veterinary medicine

- 3.1.1 Normal physiological values like body temperature, rectal temperature, heart rates, respiratory rates, urinary volume and fecal output of different species of animals
- 3.1.2 Etiology, epidemiology, transmission, pathogenesis, symptoms, diagnosis, treatment, control and prevention of common bacterial and viral diseases of livestock, poultry, equine and pets
- 3.1.3 Etiology, epidemiology, transmission, pathogenesis, symptoms, diagnosis, treatment, control and prevention of Transboundary animal disease (TADs)
- 3.1.4 Etiology, epidemiology, transmission, pathogenesis, symptoms, diagnosis, treatment, control and prevention of the common parasitic disease of livestock and poultry
- 3.1.5 Ecto-parasitism and their treatment, prevention and control
- 3.1.6 Etiology, epidemiology, transmission, pathogenesis, symptoms, diagnosis, treatment, and control of protozoan diseases of livestock and poultry
- 3.1.7 Etiology, epidemiology, transmission, pathogenesis, symptoms, diagnosis, treatment, and control of the common disease caused by Chlamydia, Rickettsia and Fungi in different species of animals
- 3.1.8 Metabolic and production diseases and their prevention and control
- 3.1.9 Nutritional deficiencies disease
- 3.1.10 Diagnosis, treatment and management of different form of poisonings and snake bite
- 3.1.11 Prospects and constrains of animal and poultry vaccine production in Nepal, their uses and abuses

3.2 Veterinary surgery

- 3.2.1 Antiseptics and disinfectants
- 3.2.2 Sterilization of surgical materials and instruments.
- 3.2.3 Inflammations, Abscess, Tumors, Cysts, Hematoma, Hernia and their treatment
- 3.2.4 Different types of wounds and their treatment
- 3.2.5 Gangrene, Burn, Scald, Frost bite and their treatment
- 3.2.6 Fractures and dislocations, their diagnosis and treatment
- 3.2.7 Special surgery: Caesarian section, Ovario-hysterectomy, Stringhalt, Neutering

3.3 Veterinary obstetrics and gynecology

- 3.3.1 Normal reproductive cycle of different farm animals and dogs
- 3.3.2 Detection of heat
- 3.3.3 Artificial insemination

- 3.3.4 Pregnancy diagnosis
- 3.3.5 Embryo transfer
- 3.3.6 Infertility and sterility
- 3.3.7 Diagnosis and treatment of silent estrus, an-estrus, repeat breeders metritis, endometritis and pyometra
- 3.3.8 Dystocia and its correction
- 3.3.9 Prolapse of uterus, bladder and vagina
- 3.3.10 Use of hormones and prostaglandins
- 3.3.11 Infectious disease causing abortions
- 3.4 Epidemiology, veterinary public health, animal welfare, one health
 - 3.4.1 Surveillance and monitoring of disease
 - 3.4.2 Different types of epidemiological studies
 - 3.4.3 Outbreak investigation
 - 3.4.4 Epidemiological reporting practices in Nepal
 - 3.4.5 Cost analysis of the disease control programs
 - 3.4.6 Risk analysis
 - 3.4.7 Diagnosis, surveillance and control of various zoonotic disease
 - 3.4.8 Milk hygiene
 - 3.4.9 Concept of HACCP (Hazard analysis and critical control point)
 - 3.4.10 Concept and strategies of One health
 - 3.4.11 Animal welfare
- 3.5 Veterinary extension
 - 3.5.1 Classification of extension teaching methods
 - 3.5.2 Public private partnership
- 3.6 Clinical pathology and parasitology
 - 3.6.1 Materials to be sent to laboratory for different disease diagnosis
 - 3.6.2 Hematological and biochemical examination of sample for disease diagnosis
 - 3.6.3 Liver and kidney functions tests
 - 3.6.4 Urine analysis
 - 3.6.5 Blood and urine culture and antibiotic sensitivity tests
 - 3.6.6 California mastitis tests (CMT)
 - 3.6.7 Important diagnostic tests: Different staining procedures, Tuberculin tests in animals, Test for pullorum disease (Rapid stained antigen), Brucellosis tests (RBPT and milk ring test), Test for rabies (Negri bodies test)
 - 3.6.8 Postmortem examination of different animal species
 - 3.6.9 Clinical parasitology (Examination of feces: direct smear method, concentration method and floatation method)
 - 3.6.10 Examination of skin scrapping
 - 3.6.11 Bacterial, Viral and Fungal serological techniques
 - 3.6.12 Enzyme Linked Immunosorbent Assay (ELISA)

4. Para-clinical subjects

10 Marks

- 4.1 Veterinary microbiology
 - 4.1.1 Bacterial genetics, mutation and variations associated with virulence

- 4.1.2 Antigenicity; Drug resistance
- 4.1.3 Principles of antiseptics, sterilization and disinfection
- 4.1.4 Resistance and immunity, antigen-antibody reaction and methods of detection Cell mediated and humoral immunity and immune mechanism. Immune system and its development, Antigen-antibody reactions.
- 4.1.5 Immunization of animals
- 4.1.6 Hypersensitivity-allergy
- 4.1.7 Bacteriophage, their description and application
- 4.1.8 Laboratory techniques for bacterial, viral, fungal culture and identification
- 4.1.9 Important diseases of domesticated animals caused by bacteria, viruses, rickettsia, chlamydia and fungi
- 4.2 Veterinary parasitology
 - 4.2.1 Parasites and parasitism, types of parasitism, host-parasite relationship
 - 4.2.2 Importance of immunity against parasitic diseases
 - 4.2.3 Classification and nomenclature of parasites and characteristics of different classes of parasites
 - 4.2.4 Parasite development in the host system
 - 4.2.5 Antiparasitic and anthelmintic medication, their use and abuse. anthelmintic resistance
 - 4.2.6 General description, classification, morphological characteristics and diseases caused by helminthes, arthropods, insects and arachnids of domesticated animals and birds and their epidemiology, effects and methods of controlling them
 - 4.2.7 Protozoon parasites of domesticated animals and birds, their classification, morphology and the diseases caused by them with epidemiology, effects and control strategies
 - 4.2.8 Identification of different parasites and the methods of their culture and laboratory growth
- 4.3 Veterinary pathology
 - 4.3.1 Pathological responses of body to infection
 - 4.3.2 Inflammation, classification and changes in inflammatory responses
 - 4.3.3 Pathological disturbances and responses in circulatory system, cell metabolism, pigment metabolism
 - 4.3.4 Disturbances in growth, neoplasm and cancer
 - 4.3.5 Healing, fever
 - 4.3.6 Uroliths, choleliths, sialoliths, pancreoliths, enteroliths
 - 4.3.7 Immune reactions, hypersensitivity and auto immunity
 - 4.3.8 Pathological changes in diseases caused by bacteria, viruses, fungus and parasites of domesticated animals and birds
- 4.4 Veterinary pharmacology and toxicology
 - 4.4.1 Anesthetics, hypnotics, sedatives, tranquilizers, analgesics, analeptics, antipyretics, histamines and antihistamines
 - 4.4.2 Anesthetics, neuromuscular blocking agents, peripheral and central muscle relaxants

- 4.4.3 Drugs acting on autonomic nervous system, neurohumoral transmission, adrenergic antagonists, cholinergic antagonists
- 4.4.4 Drugs acting on cardiovascular system, digestive system, respiratory system, urogenital system and skin and mucus membrane
- 4.4.5 Endocrine pharmacology
- 4.4.6 Vitamins
- 4.4.7 Antibacterial agents, antifungal agents, antiviral and anticancer agents, antiprotozoal agents and Anthelmintics
- 4.4.8 Cytotoxic and immunosuppressive drugs
- 4.4.9 Hormones, prostaglandins, corticosteroids
- 4.4.10 Toxicity caused by metals and non-metals, plants, commonly used drugs, agrochemicals, venomous bites and stings, environmental toxicity

5. Pre- clinical subjects

10 Marks

5.1 Veterinary anatomy

- 5.1.1 Gross anatomy of skeletal system, muscular system, nervous system, digestive system, urogenital system, circulatory system, respiratory system, reproductive system, glandular system and sense organs of domesticated animals and poultry
- 5.1.2 Introduction to cell structure, cell division and basic tissue of body. Histology of the organs of musculoskeletal, digestive, respiratory, urinary, reproductive, nervous, cardiovascular, endocrine, lymphoid, sense organs of domesticated animals and birds
- 5.1.3 General embryology, gametogenesis, fertilization, and development of fetus and body organs in domesticated animals and birds

5.2 Veterinary physiology

- 5.2.1 General function and mechanism of action of various organs of circulatory, digestive, respiratory, urinary, reproductive, nervous, sensory system, endocrine system of domesticated animals and birds
- 5.2.2 Composition and function of tissue fluids
- 5.2.3 Mechanism of respiration and gaseous exchange

5.3 Biochemistry

- 5.3.1 Biochemistry of respiration, renal function and acid base balance
- 5.3.2 Biochemistry of digestion and metabolism of carbohydrate, fat, protein, nucleic acid, minerals and trace elements
- 5.3.3 Basal and energy metabolism
- 5.3.4 Biochemistry of hormones and enzymes
- 5.3.5 Diagnostic biochemistry
- 5.3.6 Immunochemistry
- 5.3.7 Biochemistry of cellular and sub cellular components
- 5.3.8 Biochemistry of carbohydrate, lipids, proteins

5.4 Animal nutrition

- 5.4.1 Animal feed classification, nutritional requirements, feeding system and feeding standards of farm animals and birds

- 5.4.2 Functions of various nutrients and process of digestion in ruminants, non-ruminants and birds
- 5.4.3 Ration formulation for farm livestock and birds
- 5.5 Livestock production and management
 - 5.5.1 Care and management of farm livestock and poultry during different production and growth stages
 - 5.5.2 Housing system for animals and birds
 - 5.5.3 Indigenous and exotic breeds of livestock and poultry
 - 5.5.4 System of breeding and selection in farm livestock and poultry birds
 - 5.5.5 Dairy and poultry production

नमूना प्रश्नहरू (Model questions)

1. The normal body temperature of cattle is:
 - (a) 97-98°F
 - (b) 98-99°F
 - (c) 100-102°F
 - (d) 102-104°F
2. Black quarter is caused by:
 - (a) Gram positive anaerobic bacteria
 - (b) Gram negative anaerobic bacteria
 - (c) Gram positive aerobic
 - (d) Gram positive aerobic
3. Which of the following disease is not grouped in Transboundary Animal disease:
 - (a) Bluetongue
 - (b) FMD
 - (c) PPR
 - (d) Fascioliasis
4. Pulpy Kidney disease in goat is caused by:
 - (a) *Clostridium chauvoei*
 - (b) *Bacillus anthracis*
 - (c) *Pasturella multocida*
 - (d) *Clostridium perfringes*
5. Grass tetany is due to the deficiency of:
 - (a) Calcium
 - (b) Phosphorus
 - (c) Magnesium
 - (d) Selenium

प्रदेश लोक सेवा आयोग
प्रदेश नं. १, विराटनगर
स्थानीय सरकारी सेवा अन्तर्गत प्राविधिक तर्फ कृषि सेवा, भेरेरिनरी समूह, छैठौं तहका पदहरुको खुला
प्रतियोगितात्मक लिखित परीक्षाको पाठ्यक्रम

द्वितीय पत्र: Technical subject

Section A

- 1. Introduction** **20 Marks**
 - 1.1 History and current status of veterinary services in Nepal
 - 1.2 Livestock statistics of Nepal and province 1
 - 1.3 Indigenous and exotic breeds of livestock and poultry and their characteristics
 - 1.4 Role of public and private sector in the promotion of veterinary services in national, provincial and local level
 - 1.5 National and provincial policies and plans related to veterinary services and livestock development
 - 1.6 Agriculture Development Strategy (ADS)(2015-2035)

- 2. Planning and management of veterinary services** **15 Marks**
 - 2.1 Planning and management of veterinary services, livestock production services and livestock product marketing services at province and local level
 - 2.2 Herd health management and disease prevention
 - 2.3 Disease control program
 - 2.4 Planning, management, monitoring and evaluation of veterinary projects
 - 2.5 Formulation process of policy, acts, rules, regulations and standards at local level

Section B

- 3. Animal health management** **40 Marks**
 - 3.1 Etiology, diagnosis and treatment of systemic diseases of farm livestock, pets, equine and poultry
 - 3.2 Definition, etiology, epidemiology, pathogenesis, symptoms, diagnosis, treatment and control of notifiable Transboundary Animal Diseases (TADs)
 - 3.3 Etiology, epidemiology, pathogenesis, symptoms, diagnosis, treatment and control of economically important infectious diseases of farm livestock, pets, equine and poultry
 - 3.4 Etiology, epidemiology, transmission, pathogenesis, symptoms, diagnosis, treatment and control of the common disease caused by chlamydia, Rickettsia and Fungi in different species of animals
 - 3.5 Etiology, epidemiology, pathogenesis, symptoms, diagnosis, treatment and control of economically important of parasitic diseases (ecto and endo parasites) of farm livestock, pets, equine and poultry

- 3.6 Etiology, epidemiology, pathogenesis, symptoms, diagnosis, treatment and control of protozoan diseases of farm livestock, pets and poultry
- 3.7 Zoonotic diseases and their diagnosis, surveillance and control
- 3.8 General control measures against parasitic and infectious diseases of animals and birds
- 3.9 Management of production and metabolic diseases of farm animals
- 3.10 Nutritional deficiency disease
- 3.11 Diagnosis, treatment and management of different form of poisonings and snake bite
- 3.12 Definition, etiology, diagnosis, treatment and management of sub-fertility, infertility, sterility and abortion in farm animals under Nepalese condition
- 3.13 Importance of breeding management, artificial insemination, pregnancy diagnosis, estrus synchronization, super-ovulation and embryo transfer
- 3.14 Reproductive disorder and its management in farm animals
- 3.15 Current practices and importance of epidemiological reporting and animal health reporting system
- 3.16 Outbreak investigation and control
- 3.17 Risk analysis
- 3.18 Epidemiological concept of disease control
- 3.19 Concept of HACCP (Hazard analysis and critical control point)
- 3.20 Different component and management of slaughterhouse
- 3.21 Hygienic meat and milk production
- 3.22 Laboratory diagnosis of important disease of livestock and poultry
- 3.23 Prospects and constraints of vaccine production and use in Nepal
- 3.24 Veterinary drugs administration, their uses and abuses
- 3.25 Antimicrobial resistance (AMR) and Anthelmintics resistance

Section-C

4. **National and international standards, quality and regulation** **25 Marks**
 - 4.1 Slaughter house management and meat inspection principles and procedures
 - 4.2 Outline of the World Trade Organization (WTO), Sanitary and Phytosanitary measures (SPS), TBT agreement
 - 4.3 World Organization for Animal Health (OIE), its objectives, function, and its role in standard setting
 - 4.4 Role of official veterinary services in international trade of animals, products of animal origin, food safety, import risk analysis, import permit, International veterinary certifications, quarantine inspections and procedures
 - 4.5 Acts and Regulations:
 - 4.5.1 The constitution of Nepal
 - 4.5.2 Local Government Operation Act, 2074
 - 4.5.3 Animal Health and Livestock Service Act, 2055 and regulation, 2056
 - 4.5.4 Animal Slaughterhouse and Meat inspection Act, 2055 and regulation, 2057
 - 4.5.5 Nepal Veterinary Council Act, 2055 and regulation, 2057

- 4.5.6 Feed Act, 2033 and regulation, 2041
- 4.5.7 Drug Act, 2035
- 4.5.8 Poultry Policy, 2068
- 4.5.9 Bird Flu Control Order, 2064
- 4.5.10 Animal transportation standard, 2064
- 4.5.11 Livestock insurance policies and programs
- 4.6 Legal duties of a veterinarian, examinations of animals for soundness, injuries, and sudden death
- 4.7 Animal welfare
- 4.8 Concept and strategies of one health
- 4.9 Detection of frauds, Malicious poisoning/practice
- 4.10 Differentiation of different species of blood, serum, semen, hair, hide and bones
- 4.11 Co-ordination and inter-relation between Federal, provincial and local level government

नमूना प्रश्नहरू (Model questions)

1. Describe the etiology, epidemiology and control strategy of Fascioliasis in farm livestock of Nepal.
2. Write about the etiology, clinical effects, prevention and control strategy of mastitis in dairy animals.
3. What is zoonosis? List the milk borne zoonotic diseases and their control measures.
4. Design the project for control of infertility problem in farm livestock at your local level.
5. Veterinary service delivery system needs to be improved at this changing context. Suggest the ways for improvement of veterinary service delivery system in local, provincial and national level.