

## नेपाली सेना

### प्रा.उ.से.भेटेरीनरी डाक्टर (खुला) पदको लिखित परीक्षाको पाठ्यक्रम

समय : २ घण्टा ३० मिनेट

पुर्णाङ्क : १००

उत्तीर्णाङ्क : ४०

यो पाठ्यक्रम नेपाली सेनाको विभिन्न ईकाईहरूमा रिक्त रहेको प्रा.उ.से.भेटेरीनरी डाक्टर (खुला) पदका उम्मेदवार छनौट परीक्षाको लागि निर्धारण गरिएको हो । लिखित परीक्षामा सरिक हुने उम्मेदवारहरूको पेशा सम्बन्धि विषयलाई आधारमानी प्रश्नहरू सोधिने छ ।

(क) लिखित परीक्षाको माध्यम नेपाली/अंग्रेजी वा दुवै भाषा हुनेछ ।

(ख) लिखित परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र अर्को चरणको परीक्षामा सम्मिलित गराईने छ ।

(ग) प्रश्न पत्र निर्माण गर्दा पाठ्यक्रममा समावेश भएका सबै विषयहरूलाई समेटिनेछ ।

(घ) नेपाली सेनाको आवश्यकता तथा विविध परिस्थितमा नेपाली सेना अनुकूल हुने गरी उल्लेखित विवरणहरूमा हेरफेर हुन सक्नेछ ।

(ङ) पाठ्यक्रमको रूपरेखा देहायमा उल्लेख गरे अनुसार हुनेछ ।

(च) पाठ्यक्रम लागु मिति २०७३/१/६ गते ।

विषय	पुर्णाङ्क	उत्तीर्णाङ्क	परीक्षा प्रणाली		प्रश्न संख्या X अङ्क	समय
पेशा सम्बन्धी	१००	४०	वस्तुगत (Objective)	बहुवैकल्पिक प्रश्न (MCQs)	४० प्रश्न X १ अङ्क = ४०	२ घण्टा ३० मिनेट
			विषयगत (Subjective)	छोटो उत्तर	६ प्रश्न X ५ अङ्क = ३०	
				लामो उत्तर	३ प्रश्न X १० अङ्क = ३०	

पेशा सम्बन्धी विषयको पाठ्यक्रम

**(SYLLABUS FOR VETERINARY DOCTOR)**

**1. Introduction**

- 1.1 History and current status of veterinary services in Nepal and Nepalese Army
- 1.2 Current status of livestock production and production systems of livestock and poultry in Nepal
- 1.3 Indigenous and exotic breeds of livestock and poultry and their population in Nepal
- 1.4 Role of public and private sector in the promotion of veterinary services in Nepal
- 1.5 Existing Government of Nepal policies and plans related to livestock development

**2. Clinical Subjects**

**2.1 Veterinary Medicine**

- 2.1.1 Distinction between health and disease; General clinical examinations of animals; Normal physiological values like body temperature, rectal temperature, heart rates, respiratory rates, urinary volume and fecal output of different species of animals
- 2.1.2 Systemic diseases: Etiology, diagnosis and treatment of Diseases of Blood, lymphatic and cardiovascular system, Diseases of Digestive system, Common diseases of eye and ear, Diseases of Endocrine system, Diseases of Nervous system, Diseases of Reproductive and urinary system, Diseases of Respiratory system, Diseases of Skin
- 2.1.3 Metabolic, nutritional and endocrine diseases: Milk fever, Ketosis, Parturient paresis, Equine metabolic syndrome (EMS), Hyper/Hypomagnesemia, Hypocalcemia, Equine cushing's disease, etc.
- 2.1.4 Transboundary animal diseases (TADs): Definition, etiology, epidemiology, transmission, pathogenesis, symptoms, diagnosis, treatment, control and prevention of the following TADs: FMD; PPR; CBPP; CCPP; Sheep pox and Goat pox; Blue tongue; Classical swine fever; PRRS; Highly Pathogenic Avian Influenza; Equine influenza; New castle disease
- 2.1.5 Other Infectious diseases: Definition, etiology, epidemiology, transmission, pathogenesis, symptoms, diagnosis, treatment, control of the following infectious diseases: Malignant edema; Tetanus; Anthrax; Tuberculosis; Paratuberculosis; Actinomycosis; Actinobacillosis; Brucellosis; Listeriosis; Leptospirosis; Mastitis; Strangles; Glanders; Degnala disease; Salmonellosis; Mycoplasmosis; Bovine Spongiform Encephalopathy (BSE); Rabies; Scrapie; Canine distemper; Parvo virus infection; Lymphangitis, Equine Encephalomyelitis (sleeping sickness); Equine Herpesvirus infection; West Nile Virus infection; Foal pneumonia; Equine Morbillivirus Pneumonia (Hendra Virus Infection); Equine viral arteritis
- 2.1.6 Etiology, epidemiology, transmission, pathogenesis, symptoms, diagnosis, treatment, and control of the common diseases caused by Chlamydia, Rickettsia and Fungi in different species of animals

- 2.1.7 Diseases of Poultry: Definition, etiology, epidemiology, transmission, pathogenesis, symptoms, diagnosis, treatment, control of the following poultry diseases: Fowl pox; Fowl Typhoid; Salmonellosis; Colibacillosis; Chronic Respiratory Disease; Infectious bursal disease; Infectious bronchitis; Marek's disease; Avian Leucosis Complex; Egg drop syndrome; Litchi heart disease; Fowl cholera; Mycotoxicosis
- 2.1.8 Parasitic diseases: Etiology, epidemiology, transmission, pathogenesis, symptoms, diagnosis, treatment, control of the following parasitic diseases:  
Helminthic parasitic diseases: Fascioliasis; Paramphistomiasis; Ascariasis; Heartworm; Strongylodiasis; Oxyuris infection, Trichostrongylosis, *Habronema* species infection; Theilezziasis; Toxocara infection; Tapeworm infection (specially in horse and dog)  
Ectoparasitism: Mite, tick, flea infestation, especially in horse and dog  
Protozoan diseases: Anaplasmosis; Babesiosis; Theileriosis; Trypanosomiasis; Toxoplasmosis; Coccidiosis; *E. canis*; Cryptosporidiosis
- 2.1.9 General control measures of Gastro-intestinal parasitism in animals, particularly horses and dogs
- 2.1.10 Diagnosis, treatment and management of different form of plant toxicities, poisoning and snake bite
- 2.1.11 Prospects and constraints of snake anti-venom production in Nepal, their uses and abuses

## 2.2 Veterinary Surgery and Orthopedics

- 2.2.1 General surgical principles and procedures adopted in surgery
- 2.2.2 Pre and post operative considerations
- 2.2.3 Antiseptics and disinfectants
- 2.2.4 Sterilization of surgical materials and instruments
- 2.2.5 Different kinds of suture patterns and suturing materials, and their importance
- 2.2.6 Inflammation, phlebitis, lymphangitis; Abscess, gangrene, ulcers, burn, and scald; Frost bite, fistula and other physical lesions; Tumor, cysts, and affection of various tissues (Skin, bursa, muscles, tendons, synovial sheath, arteries, veins, lymphatics, nerves, bones, joints, etc.); Different types of wounds and their treatment
- 2.2.7 Fractures; Dislocations; Paralysis; Surgical condition/affection of head, neck, nasal cavity, facial sinuses, jaw, mouth, tongue, palate, cranium, horn, teeth, larynx, oesophagus, trachea, withers, back, loin, chest, abdomen, urinary organs, genital organs, tail, forelimb, hindlimb; Parenteral injection; Cauterization and firing; Hernia; Castration and vasectomy
- 2.2.8 Special surgery: Caesarian section; Rumenotomy; Ovario-hysterectomy; Stringhalt; Docking
- 2.2.9 Different types of local, regional and general anesthetic procedures
- 2.2.10 Common surgical problems and treatment: Lameness; Yoke gall

## **2.3 Veterinary Obstetrics and Gynecology**

- 2.3.1 Normal reproductive cycle of different farm animals and dogs
- 2.3.2 Breeding soundness examination of male animals
- 2.3.3 Detection of heat and synchronization
- 2.3.4 Artificial insemination
- 2.3.5 Pregnancy, its diagnosis; Different stages of parturition and diagnosis
- 2.3.6 Embryo transfer
- 2.3.7 Concept of infertility and sterility
- 2.3.8 Diagnosis and treatment of silent estrus, anestrus, repeat breeding, metritis, endometritis and pyometra
- 2.3.9 Dystocia and its correction
- 2.3.10 Prolapse of uterus, bladder and vagina, and correction
- 2.3.11 Use of hormones and prostaglandins
- 2.3.12 Infectious diseases causing abortions

## **2.4 Epidemiology and Veterinary Public Health**

- 2.4.1 Definition, aim, objectives and application of epidemiology
- 2.4.2 Epidemiological concept of disease control
- 2.4.3 Survey, Surveillance and monitoring of disease
- 2.4.4 Different types of epidemiological studies
- 2.4.5 Outbreak investigation
- 2.4.6 Prevalence rate; Incidence rate
- 2.4.7 Characteristics of host factor, agent factor and environmental factor
- 2.4.8 Different epidemiological terminologies
- 2.4.9 Risk analysis
- 2.4.10 Definition and objectives of VPH
- 2.4.11 Different roles of VPH (Animal production, food safety and environmental protection)
- 2.4.12 Zoonotic diseases: Classification and importance; Etiology, transmission, pathogenesis, diagnosis, surveillance, treatment and control
- 2.4.13 Meat inspection: ante-mortem and post-mortem examination
- 2.4.14 Different components and management of slaughterhouse
- 2.4.15 Milk hygiene
- 2.4.16 Concept of HACCP (Hazard analysis and critical control point)
- 2.4.17 Concept of Odds Ratio and Relative Risk
- 2.4.18 Concept of Sensitivity and Specificity
- 2.4.19 Concept of Herd health management
- 2.4.20 Epidemiology, Prevention and Control of Food and Water borne diseases

## **2.5 Clinical pathology**

- 2.5.1 Materials to be sent to the laboratory for diagnosis of different diseases
- 2.5.2 Hematological examinations (TC,DC, ESR, PCV, Blood smear, Hemoglobin estimation)
- 2.5.3 Blood chemistry (estimation of blood glucose, blood protein, serum calcium and phosphorus)
- 2.5.4 Liver and kidney function tests
- 2.5.5 Urine analysis (Routine test, test for detection of Protein, Glucose, Ketone bodies, Blood, Bile pigment)
- 2.5.6 Blood, milk and urine culture and antibiotic sensitivity tests
- 2.5.7 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)
- 2.5.8 Necropsy
- 2.5.9 Clinical parasitology (Examination of feces: Direct smear method, Sedimentation method and Flootation method)
- 2.5.10 Examination of skin scrapping
- 2.5.11 Bacterial, Viral and Fungal serological techniques
- 2.5.12 ELISA
- 2.5.13 AGID, HA/HI

## **3. Para-Clinical Subjects**

### **3.1 Veterinary Microbiology**

- 3.1.1 General characteristics, properties, morphology, metabolism, growth and reproduction of bacteria, virus and fungus of various classes
- 3.1.2 Bacterial genetics, mutation and variations associated with virulence
- 3.1.3 Antigenicity, drug resistance
- 3.1.4 Principles of antiseptics, sterilization and disinfection
- 3.1.5 Resistance and immunity; Antigen-antibody reaction and methods of detection; Cell mediated and humoral immunity, and immune mechanism; Immune system and its development
- 3.1.6 Immunization of animals
- 3.1.7 Hypersensitivity-allergy
- 3.1.8 Bacteriophage, their description and application
- 3.1.9 Laboratory techniques for bacterial, viral, fungal culture and identification
- 3.1.10 Important diseases of domesticated animals caused by bacteria, viruses,
- 3.1.11 rickettsia, chlamydia and fungi

### **3.2 Veterinary Parasitology**

- 3.2.1 Parasites and Parasitism, Types of parasitism, host-parasite relationship
- 3.2.2 Importance of immunity against parasitic diseases
- 3.2.3 Classification and nomenclature of parasites and characteristics of different classes of parasites
- 3.2.4 Parasite development in the host system

- 3.2.5 Antiparasitic and anthelmintic medication, their use and abuse; Anthelmintic resistance
- 3.2.6 General description, classification, morphological characteristics and diseases caused by helminths, arthropods, insects and arachnids of domesticated animals and birds and their epidemiology, effects and methods of controlling them
- 3.2.7 Protozoan parasites of domesticated animals and birds, their classification, morphology and the diseases caused by them with epidemiology, effects and control strategies
- 3.2.8 Identification of different parasites and the methods of their culture and laboratory growth

### **3.3 Veterinary Pathology**

- 3.3.1 Pathological responses of body to infection
- 3.3.2 Inflammation, classification and changes in inflammatory responses
- 3.3.3 Pathological disturbances and responses in circulatory system, cell metabolism, pigment metabolism
- 3.3.4 Disturbances in growth; Neoplasm and cancer
- 3.3.5 Wound healing; Pyrexia and fever
- 3.3.6 Uroliths, choleliths, sialoliths, pancreoliths, enteroliths
- 3.3.7 Immune reactions; Hypersensitivity and auto immunity
- 3.3.8 Pathology of diseases of cardiovascular system, hemopoietic system, respiratory system, digestive system, urinary system, genital system, nervous system, endocrine system, sense organs and musculoskeletal system of domesticated animals and birds
- 3.3.9 Pathological changes in diseases caused by bacteria, viruses, fungi and parasites of domesticated animals and birds

### **3.4 Veterinary Pharmacology and Toxicology**

- 3.4.1 Principles of drug activity, pharmacokinetics and pharmacodynamics of the drugs acting on central nervous system
- 3.4.2 Anesthetics, hypnotics, sedatives, tranquilizers, analgesics, analeptics, antipyretics, histamines and antihistamines
- 3.4.3 Anaesthetics; Neuromuscular blocking agents; Peripheral and Central muscle relaxants
- 3.4.4 Drugs acting on autonomic nervous system, neurohumoral transmission, adrenergic antagonists, cholinergic antagonists
- 3.4.5 Drugs acting on cardiovascular system, digestive system, respiratory system, urogenital system, and skin and mucus membrane
- 3.4.6 Endocrine pharmacology
- 3.4.7 Vitamins
- 3.4.8 Antibacterial agents and antibiotics, antifungal agents, anthelmintics, antiprotozoal agents, antiviral and anticancer agents
- 3.4.9 Cytotoxic and immunosuppressive drugs
- 3.4.10 Hormones, prostaglandins, corticosteroids
- 3.4.11 Toxicity caused by metals and non metals, plants, commonly used drugs, agrochemicals, venomous bites and stings; Environmental toxicity

## **4. Pre- Clinical Subjects**

### **4.1 Veterinary Anatomy**

- 4.1.1 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
- 4.1.2 Introduction to cell structure, cell division and basic tissues of body; Histology of the organs of musculoskeletal, digestive, respiratory, urinary, reproductive, nervous, cardiovascular, endocrine, lymphoid, sense organs of domesticated animals and birds
- 4.1.3 General embryology, gametogenesis, fertilization, and development of fetus and body organs in domesticated animals and birds

### **4.2 Veterinary Physiology**

- 4.2.1 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
- 4.2.2 Composition and function of tissue fluids
- 4.2.3 Mechanism of respiration and gaseous exchange

### **4.3 Biochemistry**

- 4.3.1 Biochemistry of respiration, renal function and acid base balance
- 4.3.2 Biochemistry of digestion and metabolism of carbohydrate, fat, protein, nucleic acid, minerals and trace elements
- 4.3.3 Basal and energy metabolism
- 4.3.4 Biochemistry of hormones and enzymes
- 4.3.5 Diagnostic biochemistry
- 4.3.6 Immunohistochemistry
- 4.3.7 Biochemistry of cellular and sub-cellular components
- 4.3.8 Biochemistry of carbohydrate, lipids, proteins
- 4.3.9 Diagnostic biochemistry
- 4.3.10 Polymerase Chain Reaction technology

### **4.4 Animal Nutrition**

- 4.4.1 Animal feed classification, nutritional requirements, feeding system and feeding standards of farm animals and birds
- 4.4.2 Nutrients, their classification and functions
- 4.4.3 Process of digestion, absorption and metabolism of nutrients in ruminants, non ruminants and birds
- 4.4.4 Nutritive value of common feedstuffs
- 4.4.5 Conservation of green fodder
- 4.4.6 Feed additives
- 4.4.7 Feed processing methods
- 4.4.8 Ration formulation for farm livestock and birds

#### 4.5 **Livestock Production and Management**

- 4.5.1 Care and management of farm livestock and poultry during different production and growth stages
- 4.5.2 Housing system for animals and birds
- 4.5.3 Characteristics of different breeds of farm livestock and birds
- 4.5.4 Dairy and poultry production
- 4.5.5 Pasture and forage production and management

#### 4.6 **Animal Breeding and Genetics**

- 4.6.1 Various breeds of cattle, buffalo, goat, sheep, dog, horse and poultry
- 4.6.2 Selection methods and types for breeding
- 4.6.3 Breeding methods
- 4.6.4 Genetic studies of various animals and birds

### 5. **Regulatory Functions**

- 5.1 Outline of the World Trade Organization (WTO), Sanitary and Phytosanitary (SPS) measures
- 5.2 Technical Barrier to Trade (TBT), Trade related aspects of Intellectual Property Rights agreement
- 5.3 Introduction to OIE, its objectives, function, structure; Standard setting procedures and different standards as set in Terrestrial Animal Health Code, Aquatic Animal Health Code
- 5.4 Different standards for Biological preparation and Standard Diagnostic Tests for various diseases of farm animals
- 5.5 Role of Official Veterinary Services in International trade of animals, products of animal origin, food safety, import risk analysis, import permit
- 5.6 International Veterinary certifications, quarantine inspections and procedures
- 5.7 Animal Health Related Acts and Regulations
  - 5.7.1 Animal Health and Livestock Service Act, 2055 and Regulation, 2056
  - 5.7.2 Slaughterhouse and Meat inspection Act, 2055 and Regulation, 2057
  - 5.7.3 Nepal Veterinary Council Act, 2055 and Regulation, 2057
  - 5.7.4 Feed Act, 2033 and Regulation, 2051
  - 5.7.5 Drug Act, 2035
  - 5.7.6 Muluki Ain, 2019 (Concerning Provisions only)
  - 5.7.7 National Park and Wildlife Conservation Act, 2029
  - 5.7.8 Nepal Standard (Certification Mark) Act, 2037
  - 5.7.9 Food Act, 2023 and Regulation, 2027
- 5.8 Legal Duties of a Veterinarian; Examination of animals for soundness, injuries and sudden death
- 5.9 Animal welfare
- 5.10 Detection of frauds and malicious poisoning
- 5.11 Differentiation of different species of blood, serum, semen, hair, hide and bones
- 5.12 Concept of complementary and alternative veterinary medicine

यस पेशा सम्बन्धी विषयको पाठ्यक्रमका एकाईहरूबाट सोधिने प्रश्नहरूको संख्या निम्नानुसार हुनेछ ।

एकाइ नं. (Unit No.)	अङ्कभार (Weightage)	बहुवैकल्पिक प्रश्न (MCQs) को संख्या	छोटो उत्तर प्रश्नको संख्या	लामो उत्तर प्रश्नको संख्या
१	१०	२०	६ प्रश्न X ५ अङ्क	३ प्रश्न X १० अङ्क
२	४०			
३	२०	१०		
४	२०	१०		
५	१०			
जम्मा	१००	४० प्रश्न X १ अङ्क = ४० अङ्क	६ प्रश्न X ५ अङ्क = ३० अङ्क	३ प्रश्न X १० अङ्क = ३० अङ्क