

दमक नगरपालिका, नगर कार्यपालिकाको कार्यालय

पशु चिकित्सक (अधिकृत स्तर छैठौँ) सेवा खरिद सम्बन्धी पाठ्यक्रम, २०८०

पाठ्यक्रमलाई निम्नानुसार विभाजन गरिएको छः

परीक्षाको चरण	परीक्षाको किसिम	पूर्णाङ्क
प्रथम	लिखित परीक्षा	८०
दोश्रो	अन्तर्वार्ता	२०

परीक्षा योजना

प्रथम चरण	संख्या	अंक	समय
वस्तुगत बहुउत्तर	५० x १	५०	१:३० मिनेट
विषयगत	६ x ५	३०	
	पूर्णाङ्क	८०	
	उत्तीर्णाङ्क	३२	

दोश्रो चरण	अंक
अन्तर्वार्ता	२०

द्रष्टव्यः

- यो पाठ्यक्रम योजनालाई प्रथम चरण (लिखित परीक्षा) र दोश्रो चरण (अन्तर्वार्ता) गरी दुई भागमा विभाजन गरिएको छ ।
- प्रश्न पत्र अंग्रेजी वा नेपाली भाषामा हुनेछ ।
- लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै 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 ।
- परीक्षा हलमा मोबाइल फोन, स्मार्ट वाच, हेडफोन वा यस्तै प्रकारका विद्युतीय उपकरण, पुस्तक, नोटबुक, झोला लगायतका वस्तुहरू लैजान पाइने छैन ।
- विषयगत प्रश्नका लागि तोकिएका अङ्कका हकमा 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) वा सोध्न सकिनेछ ।

- 7) परीक्षामा सोधिने प्रश्न संख्या, अङ्क र अङ्कभार यथासम्भव सम्बन्धित पत्र / विषयमा दिइए अनुसार हुनेछ ।
- 8) प्रथम र दोश्रो पत्रका पाठ्यक्रमका एकाईहरूबाट सोधिने प्रश्नहरूको अङ्क भार र संख्या देहाय अनुसार हुनेछ ।

प्रथम पत्रका इकाई	१	2	3	4	5	6	7	8	जम्मा
वस्तुगत बहुउत्तर	5	7	10	3	1३	5	4	3	50
विषयगत प्रश्नका खण्डहरू									
प्रश्नसंख्या र अङ्कभार	६ x ५								३०

- 9) यस पाठ्यक्रम योजना अन्तर्गतका पत्र/विषयका विषयवस्तुमा जेसुकै लेखिएको भएतापनि पाठ्यक्रममा परेका कानून, ऐन, नियम तथा नीतिहरूको परीक्षाको मितिभन्दा ३ महिना अगाडि (संशोधन भएका वा संशोधन भई हटाइएका वा थप गरी संशोधन भएका) कायम रहेकालाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ ।
- 10) प्रथम चरणको लिखित परीक्षामा छनौट भएका उम्मेदवारहरूलाई मात्र दोश्रो चरणको अन्तर्वार्तामा सम्मिलित गराइने छ ।
- 11) प्रथम चरणको लिखित परीक्षा र दोश्रो चरणको अन्तर्वार्ताको कूल अङ्कका योगका आधारमा अन्तिम परीक्षाफल प्रकाशित गरिनेछ ।

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पशु चिकित्सक (अधिकृत स्तर छैठौँ) सेवा खरिद सम्बन्धी पाठ्यक्रम, २०८०

1. नेपालको संविधान तथा सान्दर्भिक कानूनहरु:
  - १.१ नेपालको संविधान (मौलिक हक)
  - १.२ सार्वजनिक खरिद ऐन, २०६३ र नियमावली २०६४ (सोझै खरिद, दरभाउपत्र, कोटेशन)
  - १.३ स्थानीय सरकार सञ्चालन ऐन, २०७४ (मूलभूत विशेषता)
  - १.४ प्रदेश सुशासन (व्यवस्थापन तथा सञ्चालन) ऐन, २०७६ तथा नियमावली, २०७९ (मूलभूत पक्षहरु)
  - १.५ भ्रष्टाचार निवारण ऐन, २०७९
  - १.६ प्रदेश कृषि व्यवसाय प्रवर्द्धन अनुदान ऐन, २०७७
2. General Awareness and Contemporary Issues
  - 2.1 Physical, socio-cultural and economic geography and demography of Nepal
  - 2.2 Major natural resources of Nepal
  - 2.3 Geographical diversity, climatic conditions, and livelihood & lifestyle of people
  - 2.4 Current periodic plans of Nepal and Koshi Province
  - 2.5 Information on sustainable development, environment, pollution, climate change, biodiversity, science and technology, Sustainable Development Goals
  - 2.6 Governance system and Government (Federal, Provincial and Local)
  - 2.7 Functions and scope of public services.
  - 2.8 Concept, objective and importance of public policy
  - 2.9 Fundamentals of management: planning, organizing, directing, controlling, coordinating, decision making, motivation and leadership
  - 2.10 Government planning, budgeting, MTEF and accounting system
3. **Animal Health related Plans, Policies, Acts & Regulations of Nepal & Koshi Province**
  - 3.1 Animal Health and Livestock Service Act, 2055 and Regulation, 2056
  - 3.2 Animal slaughterhouse and Meat inspection Act, 2055 and regulation, 2057
  - 3.3 Nepal Veterinary Council Act, 2055 and regulation, 2057
  - 3.4 Feed Act, 2033 and regulation, 2041
  - 3.5 Drug Act, 2035
  - 3.6 National Park and Wildlife Conservation Act
  - 3.7 Poultry Policy, 2068
  - 3.8 Bird Flu Control Regulations, 2078 & Compensation Standard 2079
  - 3.9 Animal transportation standard, 2064
  - 3.10 National Animal Health Policy 2078
  - 3.11 National Animal Breeding Policy 2078
  - 3.12 National Dairy Development Policy 2078

- 3.13 National Fisheries Development Policy 2079
- 3.14 One Health Strategy 2076
- 3.15 National Food Safety Policy 2076
- 3.16 Food Security & Food Sovereignty Act 2076
- 3.17 पशु स्वास्थ्य तथा पशु सेवा व्यवसायी परिषद् ऐन, २०७९
- 3.18 Zoning & compartmentalization Directives 2078
- 3.19 Animal welfare Directives, 2073
- 3.20 Other provincial acts and regulations related to veterinary service

#### 4. **History & current Status of Livestock & Veterinary Services**

- 4.1 History and current status of Veterinary Services in Nepal
- 4.2 Livestock statistics of Nepal and Koshi Province
- 4.3 Role of public and private sector in the promotion of veterinary services in national and provincial level
- 4.4 National and provincial policies and plans related to veterinary services and livestock development
- 4.5 Provisions made by Agriculture Prospective Plan (APP), Agriculture Development Strategy (ADS), Livestock Master Plan and Dairy Development Plan for Livestock sector development
- 4.6 Organizational structure of agricultural service in federal context

#### 5. **Clinical subjects**

##### 5.1 **Veterinary Medicine**

- 5.1.1 Distinguish 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
- 5.1.2 Systemic disease: Etiology, diagnosis and treatment of: Disease of Blood, lymphatic and cardiovascular system, Disease of Digestive system, Common disease of eye and ear, Disease of Endocrine system, Disease of Nervous system, Disease of Reproductive and urinary system, Disease of Respiratory system, Disease of Skin
- 5.1.3 Metabolic and production diseases
- 5.1.4 Nutritional deficiencies disease
- 5.1.5 Trans-boundary animal disease (TADs): Etiology, epidemiology, transmission, pathogenesis, symptoms, diagnosis, treatment, control and prevention of the following: Foot and mouth disease (FMD), Rinderpest (RP), PPR, Contagious bovine pleuropneumonia (CBPP), Sheep pox and Goat pox, Blue tongue, Classical swine fever, Avian influenza, Newcastle disease, Lumpy skin disease, etc.
- 5.1.6 Other Infectious disease: Etiology, epidemiology, transmission, pathogenesis, symptoms, diagnosis, treatment, control of the

following infectious disease: Hemorrhagic septicemia (HS), Black quarter (BQ), Malignant edema; Tetanus; Anthrax; Tuberculosis; Paratuberculosis; Actinomycosis; Actinobacillosis; Brucellosis; Listeriosis; Leptospirosis; Mastitis; Strangles; Glanders; Degnala disease; Salmonellosis; Mycoplasmosis; Mad cow disease; Rabies; Scrapie; Canine distemper etc.

- 5.1.7 Etiology, epidemiology, transmission, pathogenesis, symptoms, diagnosis, treatment, and control of the common disease caused by chlamydia, Rickettsia and Fungi in different species of animals
- 5.1.8 Diseases of Poultry: Etiology, epidemiology, transmission, pathogenesis, symptoms, diagnosis, treatment and control of the following poultry disease: Fowl pox, Fowl Typhoid, Bacillary white diarrhea (BWD), Chronic Respiratory Disease (CRD), Infectious bursal disease, Infectious bronchitis, Marek's disease, Avian leucosis complex, Egg drop syndrome, Hydropericardium syndrome, Fowl cholera, Aflatoxicosis
- 5.1.9 Parasitic disease: Etiology, epidemiology, transmission, pathogenesis, symptoms, diagnosis, treatment, control of the following parasitic disease helminthic parasitic disease: Liver fluke, Paramphistomiasis, Ascariasis, Gastrointestinal Nematodiasis, Tapeworm infection in different species of animals, General control measures of Gastro intestinal parasitism in animals.
- 5.1.10 Ecto-parasitism and their treatment, prevention and control
- 5.1.11 Protozoan diseases: Anaplasmosis, Babesiosis, Trypanosomiasis, Theileriosis, Toxoplasmosis and Coccidiosis
- 5.1.12 Diagnosis, treatment and management of different form of poisonings and snake bite
- 5.1.13 Prospects and constrains of animal and poultry vaccine production in Nepal, their uses and abuses

## **5.2 Veterinary Surgery**

- 5.2.1 General surgical principles and procedures adopted in surgery
- 5.2.2 Pre- and post-operative considerations
- 5.2.3 Antiseptics and disinfectants
- 5.2.4 Sterilizations of surgical materials and instruments.
- 5.2.5 Importance of sutures and suturing materials
- 5.2.6 Inflammations; Abscess; Tumors; Cysts; Hematoma; Hernia and their treatment
- 5.2.7 Different types of wounds and their treatment
- 5.2.8 Gangrene; Burn, Scald; Frost bite and their treatment
- 5.2.9 Fractures and dislocations, their diagnosis and treatment
- 5.2.10 Special surgery; Caesarian section; Rumenotomy;

Ovariohysterectomy, Stringhalt; Spaying and Neutering

5.2.11 Different types of local, regional and general anesthetic procedures

### **5.3 Veterinary obstetrics and Gynecology**

5.3.1 Normal reproductive cycle of different farm animals and dogs.

5.3.2 Breeding soundness examination of bull

5.3.3 Detection of heat

5.3.4 Artificial insemination

5.3.5 Pregnancy diagnosis

5.3.6 Embryo transfer

5.3.7 Concept of infertility and sterility

5.3.8 Diagnosis and treatment of silent estrus, an-estrus, repeat breeders metritis, endometritis and pyometra

5.3.9 Dystokia and its correction

5.3.10 Prolapse of uterus, bladder and vagina

5.3.11 Use of hormones and prostaglandins

5.3.12 Infectious disease-causing abortions

### **5.4 Epidemiology and Veterinary public health**

5.4.1 Definition, aim, objectives and application of epidemiology

5.4.2 Epidemiological concept of disease control

5.4.3 Surveillance and monitoring of disease

5.4.4 Different types of epidemiological studies

5.4.5 Outbreak investigation

5.4.6 Prevalence rate, incidence rate and difference between them

5.4.7 Characteristics of host factor, agent factor and environmental factor

5.4.8 Different terminology used in epidemiology

5.4.9 Epidemiological reporting practices in Nepal

5.4.10 Cost analysis of the disease control programs

5.4.11 Risk analysis

5.4.12 Definition and objective of veterinary Public Health (VPH)

5.4.13 Different roles of VPH (Animal production, food hygiene and environmental protection)

5.4.14 Diagnosis, surveillance and control of various zoonotic disease

5.4.15 Meat inspection: anti-mortem, post-mortem and re-inspection

5.4.16 Different component and management of slaughterhouse

5.4.17 Milk hygiene

5.4.18 Concept of HACCP (Hazard analysis and critical control point)

### **5.5 Veterinary extension**

5.5.1 Definition, philosophy and principles of extension education

5.5.2 Classification of extension teaching methods

5.5.3 Public private partnership

5.5.4 Social mobilization (CBOs, NGOs and INGOs)

### **5.6 Clinical pathology and parasitology**

- 5.6.1 Materials to be sent to laboratory for different disease diagnosis
- 5.6.2 Hematological examinations (TC, DC, ESR, PCV, RBC count, Blood smears, hemoglobin estimation)
- 5.6.3 Blood chemistry (estimation of blood glucose, serum and calcium etc.)
- 5.6.4 Liver and kidney functions tests
- 5.6.5 Urine analysis (Routine test, test for detection of protein, Glucose, Ketone bodies, blood, bile pigment etc.)
- 5.6.6 Blood and urine culture and antibiotic sensitivity tests
- 5.6.7 California mastitis tests
- 5.6.8 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)
- 5.6.9 Post mortem examinations of different animal species
- 5.6.10 Clinical parasitology (Examination of feces: direct smear method, concentration method and Flootation method)
- 5.6.11 Examination of skin scrapping
- 5.6.12 Bacterial, Viral and Fungal serological techniques
- 5.6.13 Enzyme Linked Immunosorbent Assay (ELISA)

## **6. Para-clinical subjects**

### **6.1 Veterinary Microbiology**

- 6.1.1 General characteristics, properties, morphology, metabolism, growth and reproduction of bacteria, virus and fungus of various classes
- 6.1.2 Bacterial genetics, mutation and variations associated with virulence
- 6.1.3 Antigenicity, drug resistance
- 6.1.4 Principles of antiseptics, sterilization and disinfection
- 6.1.5 Resistance and immunity, antigen-antibody reaction and methods of detection Cell mediated and humoral immunity and immune mechanism. Immune system and its development. Antigen-antibody reactions
- 6.1.6 Immunization of animals
- 6.1.7 Hypersensitivity-allergy
- 6.1.8 Bacteriophage, their description and application
- 6.1.9 Laboratory techniques for bacterial, viral, fungal culture and identification
- 6.1.10 Important diseases of domesticated animals caused by bacteria, viruses, rickettsia, chlamydia and fungi

### **6.2 Veterinary Parasitology**

- 6.2.1 Parasites and Parasitism, Types of parasitism, host-parasite relationship
- 6.2.2 Importance of immunity against parasitic diseases

- 6.2.3 Classification and nomenclature of parasites and characteristics of different classes of parasites
- 6.2.4 Parasite development in the host system
- 6.2.5 Antiparasitic and anthelmintic medication, their use and abuse, Anthelmintic resistance
- 6.2.6 General description, classification, morphological characteristics and diseases caused by helminths, arthropods, insects and Arachnida of domesticated animals and birds and their epidemiology, effects and methods of controlling them
- 6.2.7 Protozoon parasites of domesticated animals and birds, their classification, morphology and the diseases caused by them with epidemiology, effects and control strategies
- 6.2.8 Identification of different parasites and the methods of their culture and laboratory growth

### **6.3 Veterinary Pathology**

- 6.3.1 Pathological responses of body to infection
- 6.3.2 Inflammation, classification and changes in inflammatory responses
- 6.3.3 Pathological disturbances and responses in circulatory system, cell metabolism, pigment metabolism
- 6.3.4 Disturbances in growth, Neoplasm and cancer
- 6.3.5 Healing, fever
- 6.3.6 Uroliths, choleliths, sialoliths, pancreoliths, enteroliths
- 6.3.7 Immune reactions. Hypersensitivity and auto immunity
- 6.3.8 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
- 6.3.9 Pathological changes in diseases caused by bacteria, viruses, fungus and parasites of domesticated animals and birds

### **6.4 Veterinary Pharmacology and Toxicology**

- 6.4.1 Principles of drug activity, pharmacokinetics and pharmacodynamics of the drugs acting on central nervous system
- 6.4.2 Anesthetics, hypnotics, sedatives, tranquilizers, analgesics, analeptics, antipyretics, histamines and antihistamines
- 6.4.3 Anesthetics, Neuromuscular blocking agents, Peripheral and Central muscle relaxants
- 6.4.4 Drugs acting on autonomic nervous system, neurohumoral transmission, adrenergic antagonists, cholinergic antagonists
- 6.4.5 Drugs acting on cardiovascular system, digestive system, respiratory system, urogenital system and skin and mucus membrane
- 6.4.6 Endocrine pharmacology



- 6.4.7 Vitamins
- 6.4.8 Antibacterial agents, antifungal agents, anthelmintics, antiprotozoal agents, antiviral and anticancer agents
- 6.4.9 Cytotoxic and immunosuppressive drugs
- 6.4.10 Hormones, prostaglandins, corticosteroids
- 6.4.11 Toxicity caused by metals and non-metals, plants, commonly used drugs, agrochemicals, venomous bites and stings and environmental toxicity

## **7. Pre- clinical subjects**

### **7.1 Veterinary Anatomy**

- 7.1.1 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
- 7.1.2 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
- 7.1.3 General embryology, gametogenesis, fertilization, and development of fetus and body organs in domesticated animals and birds

### **7.2 Veterinary Physiology**

- 7.2.1 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
- 7.2.2 Composition and function of tissue fluids
- 7.2.3 Mechanism of respiration and gaseous exchange

### **7.3 Biochemistry**

- 7.3.1 Biochemistry of respiration, renal function and acid base balance
- 7.3.2 Biochemistry of digestion and metabolism of carbohydrate, fat, protein, nucleic acid, minerals and trace elements
- 7.3.3 Basal and energy metabolism
- 7.3.4 Biochemistry of hormones and enzymes
- 7.3.5 Diagnostic biochemistry
- 7.3.6 Immunochemistry
- 7.3.7 Biochemistry of cellular and sub cellular components
- 7.3.8 Biochemistry of carbohydrate, lipids, proteins
- 7.3.9 Diagnostic biochemistry

### **7.4 Animal Nutrition**

- 7.4.1 Animal feed classification, nutritional requirements, feeding system and feeding standards of farm animals and birds
- 7.4.2 Functions of various nutrients and process of digestion in ruminants, non- ruminants and birds

7.4.3 Ration formulation for farm livestock and birds

**7.5 Livestock Production and Management**

7.5.1 Care and management of farm livestock and poultry during different production and growth stages

7.5.2 Housing system for animals and birds

7.5.3 Characteristics of different breeds of farm livestock and birds

7.5.4 System of breeding and selection in farm livestock and poultry birds

7.5.5 Dairy and poultry production

**8. International Authorities, Regulations and Standards Related to Animal Health and Veterinary Services and Legal Duties of Veterinarian**

**8.1** Outline of the World Trade Organization (WTOs), Sanitary and Phytosanitary (SPS) measures

**8.2** Technical Barrier to Trade (TBT), Trade related aspects of Intellectual Property Rights (IPRs) agreement

**8.3** Introduction to World Organization for Animal Health (WOAH), its objectives, function, structure, Standard setting procedures and different standards as set in Terrestrial Animal health code, Aquatic animal health code

**8.4** Different standards for biological preparation and standard Diagnostics Tests for various diseases of farm animals

**8.5** Role of Official Veterinary Services in International Trade of animals, products of animal origin, food safety, import risk analysis, import permit

**8.6** International Veterinary certifications, quarantine inspections and procedures

**8.7** Legal Duties of a Veterinarian, Examinations of animals for soundness, injuries, and sudden death.

**8.8** Detection of Frauds, Malicious poisoning/practice

**8.9** Differentiation of different species of blood, serum, semen, hair, hide and bones