पाठ्यक्रमको रुपरेखा :— यस पाठ्यक्रमको आधारमा निम्नानुसार दुई चरणमा परीष्ठ लिन्छ।
प्रथम चरण :— लिखित परीष्ठा
पूर्णांक :- 200
द्वितीय चरण :— अन्तर्वांता
पूर्णांक :- 30

प्रथम चरण – लिखित परीष्ठा योजना (Examination Scheme)

<table>
<thead>
<tr>
<th>प्रत्येक विषय</th>
<th>पूर्णांक</th>
<th>उत्तरावंता</th>
<th>प्रश्न संख्या Xअभीमान</th>
<th>समय</th>
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<tr>
<td>प्रथम स्वास्थ्य</td>
<td>100 40</td>
<td>वस्तुनिष्ठ बहुउत्तर (Multiple Choice)</td>
<td>100X4 = 100</td>
<td>1 घण्टा 15 मिनिट</td>
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<tr>
<td>द्वितीय विषय</td>
<td>100 40</td>
<td>विषयनिष्ठ (Subjective)</td>
<td>100X10 = 100</td>
<td>3 घण्टा</td>
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द्वितीय चरण

<table>
<thead>
<tr>
<th>विषय</th>
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<th>परीष्ठा प्रणाली</th>
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<tr>
<td>व्यस्तगत अन्तर्वांता</td>
<td>10</td>
<td>मौखिक</td>
</tr>
</tbody>
</table>

1. लिखित परीष्ठाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुबै हुन सकनेछ।
2. पाठ्यक्रमको प्रथम र द्वितीय प्रत्येक विषयमा विषयनिष्ठ तथा वस्तुनिष्ठ फरक फरक हुनेछ।
3. प्रथम र द्वितीय परीष्ठा दुहालाई हुनेछ।
4. प्रथम तथा द्वितीय प्रत्येक पाठ्यक्रमका एकाइसम्बन्धमा सिद्धान्त प्रश्नहरूको संख्या निम्नानुसार हुनेछ:

<table>
<thead>
<tr>
<th>प्रथम पाठक्रमका एकाइ</th>
<th>प्रश्न संख्या</th>
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</tr>
<tr>
<td>प्रश्न संख्या</td>
<td>10</td>
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<tr>
<td>द्वितीय पाठक्रमका बाह्यप्रश्न</td>
<td>A</td>
</tr>
<tr>
<td>द्वितीय पाठक्रमका बाह्यप्रश्न</td>
<td>1</td>
</tr>
<tr>
<td>प्रश्न संख्या</td>
<td>2</td>
</tr>
</tbody>
</table>

5. प्रथम पाठक्रमका बहुउत्तर (Multiple Choice) प्रश्नहरूको उत्तर सही विषयमा प्रत्येक सही उत्तर बापत 1 (एक) अवधी प्रश्न गरीनछ भनेल गलत उत्तर विषयमा प्रत्येक गलत उत्तर बापत 20 प्रत्िगत अव्यय 0.5 अवधी कहा गरीनछ। तर उत्तर नदियामा त्यस बापत अवधी दिन्छ र अवधी कहा पनि गरिनछ।
6. द्वितीय प्रत्येक परिस्थिति प्रश्नहरूलाई तो लिखितको 90 अव्यय गरीका प्रश्नहरूको हकमा 90 अव्यय एउटा नामो प्रश्न र एउटा प्रश्नका दुई दुई भन्ने वीपल बिही भाग (Two or more parts of a single question) र एउटा प्रश्न अन्तर्वांता दुई बाली विषयलीहरु (Short notes) सोज सङ्केत छन्।
7. द्वितीय परीष्ठा पाठ्यक्रमलाई 3 बाटो बाह्यप्रश्न (Multiple Choice), 3 बाटो बाह्यप्रश्न (Subjective), 3 बाटो उपभूमिका बाह्यप्रश्न (Short notes) र परीष्ठालाई प्रत्येक बाह्यप्रश्नका पाठ्यक्रमको उत्तर सही बाह्यप्रश्न/एउटा बाह्यप्रश्न उपभूमिका लेखन परीष्ठा छ।
8. यस पाठ्यक्रममा जेञ्जुके लेखिएको भएका पनि पाठ्यक्रमका प्रथेक एउटा, निम्नहरू परीष्ठाको मिस्त्र भन्न्य 3 (तीन) महत्त्व अव्यय (संशोधन भएका र संशोधन भएका) र वचन गरी संशोधन भएका। कायम रेखालाई यस पाठ्यक्रममा रेखाको सम्बन्धपत्र गरिनछ।
9. प्रथम चरणको लिखित परीष्ठालाई छॅनी भएका उमेदवारहरूलाई मात्र द्वितीय चरणको अन्तर्वांता सम्बन्धित गरिनछ।
10. यस भन्न अव्यय मात्र भएको माथि उल्लिखित समतलको पाठ्यक्रम बाहेक गरिएको छ।
11. पाठ्यक्रम लागू भनिदै।— २०१२/२/२३ देखि
1. **Introduction**  
1.1 History and current status of veterinary services in Nepal  
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 Recent HMG/N policies and plans related to livestock development  
1.6 Provisions made by APP, Livestock Master Plan and Dairy development Plan for Livestock sector development  

2. **Clinical subjects**  

2.1 **Veterinary Medicine**  
2.1.1 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  
2.1.2 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  
2.1.3 Metabolic and production diseases  
2.1.4 Nutritional deficiencies disease  
2.1.5 Trans-boundary animal disease (TADs): Definition, etiology, epidemiology, transmission, pathogenesis, symptoms, diagnosis, treatment, control and prevention of the following TADs: FMD; RP; PPR; CBPP; Sheep pox and Goat pox; Blue tongue; Classical swine fever; Highly Pathogenic Avian Influenza; New castle disease  
2.1.6 Other Infectious disease: Definition, etiology, epidemiology, transmission, pathogenesis, symptoms, diagnosis, treatment, control of the following infectious disease: HS; BQ; Malignant edema; Tetanus; Anthrax; Tuberculosis; Paratuberculosis; Actinomyces; Actinobacillosis; Brucellosis; Listeriosis; Leptospirosis; Mastitis; Strangles; Glanders; Degnala disease; Salmonellosis; Mycoplasmosis; Mad cow disease; Rabies; Scrapie; Canine distemper;  
2.1.7 Etiology, epidemiology, transmission, pathogenesis, symptoms, diagnosis, treatment, and control of the common disease caused by chlymedia, Ricktesia and Fungi in different species of animals  
2.1.8 Disease of Poultry: Definition, etiology, epidemiology, transmission, pathogenesis, symptoms, diagnosis, treatment, control of the following poultry disease: Fowl pox; Fowl Typhoid; BWD; CRD; Infectious bursal disease; Infectious bronchitis; Marek's disease; Avian leucosis complex; Egg drop syndrome; Leechy heart disease; Fowl cholera; Aflatoxicosis  
2.1.9 Parasitic disease: Etiology, epidemiology, transmission, pathogenesis, symptoms, diagnosis, treatment, control of the following parasitic disease Helminthic parasitic disease: LF; Paramphistomiases; Ascarisis; G.I. Nematodiasis; Tape worm infection in different species of animals. ecto-
parasitism, General control measures of Gastro intestinal parasitism in animals. Protozoan diseases: Anaplasmosis; Babesiosis; Theileriosis; Trypanosomiasis; Toxoplasmosis; and Coccidiosis

2.1.10 Diagnosis, treatment and management of different form of poisonings and snake bite
2.1.11 Prospects and constrains of animal and poultry vaccine production in Nepal, their uses and abuses

2.2 Veterinary Surgery
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 Sterilizations of surgical materials and instruments.
2.2.5 Importance of sutures and suturing materials
2.2.6 Inflammations; Abscess; Tumors; Cysts; Heamatoma; Hernia and their treatment
2.2.7 Different types of wounds and their treatment
2.2.8 Gangrene; Burn, Scald; Frost bite and their treatment
2.2.9 Fractures and dislocations, their diagnosis and treatment
2.2.10 Special surgery; Caesarian section; Rumenotomy; Ovario-histerectomy, Stringhalt; Spaying and Neutering
2.2.11 Different types of local, regional and general anesthetic procedures

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 bull
2.3.3 Detection of heat
2.3.4 Artificial insemination
2.3.5 Pregnancy diagnosis
2.3.6 Embryo transfer
2.3.7 Concept of infertility and sterility
2.3.8 Diagnosis and treatment of silent estrus, an-estrus, repeat breeders metritis, endometritis and pyometra
2.3.9 Dystokia and its correction
2.3.10 Prolapse of uterus, bladder and vagina
2.3.11 Use of hormones and prostaglandins
2.3.12 Infectious disease 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 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 and difference between them
2.4.7 Characteristics of host factor, agent factor and environmental factor
2.4.8 Different terminology used in epidemiology
2.4.9 Epidemiological reporting practices in Nepal
2.4.10 Cost analysis of the disease control programs
2.4.11 Risk analysis
2.4.12 Definition and objective of VPH
2.4.13 Different roles of VPH (Animal production, food hygiene and environmental protection)
2.4.14 Diagnosis, surveillance and control of various zoonotic disease
2.4.15 Meat inspection: anti-mortem, post-mortem and re-inspection
2.4.16 Different component and management of slaughterhouse
2.4.17 Milk hygiene
2.4.18 Concept of HACCP (Hazard analysis and critical control point)

2.5 Veterinary extension

2.5.1 Definition, philosophy and principles of extension education
2.5.2 Classification of extension teaching methods
2.5.3 Public private partnership
2.5.4 Social mobilization (CBOs, NGOs, and INGOs)

2.6 Clinical pathology and parasitology

2.6.1 Materials to be sent to laboratory for different disease diagnosis
2.6.2 Hematological examinations (TC, DC, ESR, PCV, RBC count, Blood smears, hemoglobin estimation
2.6.3 Blood chemistry (estimation of blood glucose, serum and calcium
2.6.4 Liver and kidney functions tests
2.6.5 Urine analysis (Routine test, test for detection of protein, Glucose, Ketone bodies, blood, bile pigment
2.6.6 Blood and urine culture and antibiotic sensitivity tests
2.6.7 California mastitis tests
2.6.8 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)
2.6.9 Post mortem examinations
2.6.10 Clinical parasitology (Examination of feces: direct smear method, concentration method and Floatation method)
2.6.11 Examination of skin scraping
2.6.12 Bacterial, Viral and Fungal serological techniques
2.6.13 ELISA

3. Para-clinical subjects 20%

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. Antigen-antibody reactions
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, rickettsia, chlamedia 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 arachnida 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 Healing, 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, fungus 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, tranquillizers, 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, 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 and 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 tissue 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 Biochemistry of cellular and subcellular components
4.3.7 Biochemistry of carbohydrate, lipids, proteins
4.3.8 Diagnostic biochemistry

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 Functions of various nutrients and process of digestion in ruminants, non-ruminants and birds

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

4.5.5 Dairy and poultry production

5. Regulatory functions

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

5.2 Technical Barrier to Trade (TBT) Trade related aspects of Intellectual Property Rights (IPRs) 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 Diagnostics 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 & 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

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

5.9 Animal welfare

5.10 Detection of Frauds, Malicious poisoning

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

कस्तुनुसत भटोसर नमूना प्रश्नहरू (Sample Questions)
1. *Haemonchus contortus* parasite in sheep is present in:
   (A) Rumen
   (B) Abomasum
   (C) Caecum
   (D) Colon

   **Correct Answer :- (B)**

2. Which of the following disease is not grouped in TADs
   (A) PPR
   (B) FMD
   (C) RP
   (D) Mastitis

   **Correct Answer :- (D)**

3. Milk fever is a
   (A) Parasitic disease
   (B) Infectious disease
   (C) Metabolic disease
   (D) None of the above

   **Correct Answer :- (C)**

4. The average normal body temperature of a cattle is
   (A) 101°F
   (B) 99°F
   (C) 101°F
   (D) 104°F

   **Correct Answer :- (C)**

5. Loss of blood from the body will result to
   (A) Anemia
   (B) Hematoma
   (C) Hyperemia
   (D) Carcinoma

   **Correct Answer :- (A)**

6. Deficiency of calcium in the diet will result to
   (A) Rickets
   (B) Distortion of jaw
   (C) Enlargement of join
   (D) All of the above

   **Correct Answer :- (D)**