



GENERAL INFORMATION FOR THE CANDIDATES
FOR THE POSTS OF VETERINARY OFFICER

1.0 Introduction.

- 1.1 The Punjab Public Service Commission (PPSC) has been established under Article 315 of the Constitution of India, with the basic purpose of recruiting officials in various departments of the Government as per the requisitions sent by the Government in this regard from time to time.
- 1.2 The Punjab Public Service Commission invites Online Application Forms from eligible Candidates for recruitment to the **One Hundred Seventeen Posts of Veterinary Officers** in the Department of Animal Husbandry, Fisheries and Dairy Development, Government of Punjab.

Note: This Advertisement is being published as per requisition received from the Department of Animal Husbandry, Fisheries and Dairy Development, Government of Punjab vide their letter No. 1/2/2016-य.य.1(9)/1154 dated 15.3.2016 & letter No. 1/2/2016-य.य.1(9)/2165 dated 22.04.2016 and is subject to any modification or amendment that may be made by the Government subsequently.

2.0 Vacancies

- 2.1 The number of vacancies to be filled for the Posts of Veterinary Officer is given in the table below:

Sr. No.	Category Code	Name of Category	No. of Posts
1	71	General	46
2	72/73	ESM/LDESM,Punjab.	07
3	74	Wards of Freedom Fighter,Punjab.	01
4	75	Sports Person,Punjab.	01
5		<u>Physically Handicapped,Punjab.</u>	
	76-A	Visually Impaired	01
	76-B	Hearing Impaired	01
	76-C	Orthopaedically Disabled	01
			} 03
6	77	SC Others ,Punjab.	16
7	78/79	SC ESM/LDESM,Punjab.	03
8	80	SC Sports Person,Punjab.	01
9	81	Balmiki/Mazhbi Sikh Punjab.	23
10	82/83	Balmiki/Mazhbi ESM/LDESM,Punjab	04
11	84	Balmiki/Mazbhi Sikhs(Sports Persons),Punjab	01
12	85	BC,Punjab.	09
13	86/87	BC ESM/LDESM,Punjab.	02
			117*

***Note:-** The number of posts is liable to alternation without any notice.

- 2.2 The Candidates should indicate in the Application Form, the category for which they want to be considered. CATEGORY ONCE FILLED would not be changed under any circumstances.

3.0 Pay Scale : Rs. 15600-39100 +5400 Grade Pay

4.0 Essential Qualifications

4.1 Bachelor Degree in Veterinary Science and Animal Husbandry from any Recognised University or Institution. Provided that the persons possessing qualification of Ph.D. or M.V.Sc. in any of the Branches of Animal Husbandry and Veterinary Science shall be given preference.

4.2 Punjabi of Matric or its equivalent standard.

Note related to Sub-Para 4.2: Relaxable for Sikh Migrants to the extent that they will have to acquire such qualification within two years after joining the service failing which their services shall liable to be terminated.

Note:- **Regarding drawing the pay of the appointed candidate, as per Notifications No. 7/2004/2012-4FP1/66, Dated 15/01/2015 of Govt. of Punjab Department of Finance (Finance Personnel-I Branch) Chandigarh, fixed emolument equal to Minimum of the Pay Band without any Grade Pay or any allowance will be paid during the probation period of 2 years. It is also clear that Annual increment or any other allowance except travelling allowance will not be paid during the probation period of 2 years.**

5.0 Age

- 5.1 Candidate should not be below 18 years and above 37 years of age on the 01-01-2016.
- 5.2 Upper age limit may be relaxed upto 45 years for all States/ Central Government employees.
- 5.3 The Upper age limit is relaxed up to 42 years for Scheduled Castes and Backward Classes of Punjab.
- 5.4 Ex-servicemen of Punjab Domicile shall be allowed to deduct the period of his service in the Armed Forces of Union from his actual age and if the resultant age does not exceed the maximum age limit prescribed for direct appointment to such a vacancy in the Service Rules concerned by more than three years, he shall be deemed to satisfy the condition regarding age limit.
- 5.5 Upper age limit is also relaxed upto 42 years for Widows, Divorcees and certain other Categories of Women.
- 5.6 Upper age limit is also relaxed upto 47 years for Physically Handicapped of Punjab.

6.0 Competitive Examination

The details of Competitive examination are as follows:-

- 6.1 This is for information of the candidates who have applied for the posts of Veterinary Officers in the Department of Animal Husbandry, Fisheries and Dairy Development, Government of Punjab that a competitive exam for recruitment to these posts shall be conducted. The date and time of competitive exam will be uploaded on the website shortly.
- 6.2 The scheme of the examination process shall be as under:

Competitive Exam (Objective Type) -	300 Marks
Interview -	40 Marks
Grand Total -	340 Marks
- 6.3 The examination centre(s) shall be in Patiala and information of the same shall be mentioned on Admit Cards of all candidates. Details regarding the Admit cards shall be given shortly on the website of the Commission.
- 6.4 All candidates who have applied for ibid posts have been declared "provisionally eligible" for appearing in the competitive exam
- 6.5 The scrutiny of application forms shall be done after the conduct of exam. During the process of scrutiny, the application forms and other relevant documents, certificates, etc of the candidates shall be examined to determine their eligibility as on the last date of submission of online application forms.
- 6.6 Thereafter, candidates not more than three times the number of posts (in their order of merit) shall be short-listed for appearing in the interview. However, this number shall be subject to variation if two or more candidates at the last number (the number at the end) get equal marks, then all of them shall be considered for appearing in the interview (subject to eligibility), warranting the corresponding increase in the stipulated ratio.
- 6.7 The salient features of the written competitive exam shall be as follows:-
 - (a) The exam will consist of 100 objective type multiple choice questions.

- (b) The standard of questions would be to test the knowledge and general awareness as is expected of a person who has attained education at least up to graduation level.
- (c) The duration of exam will be two hours.
- (d) All questions will carry equal marks (three marks each).
- (e) There will be no negative marking.
- (f) The Viva-Voce shall carry 40 marks and final result shall be prepared on the basis of the grand total of the marks obtained by the Candidates in the Written Competitive Examination and Viva-Voce.

6.8 SYLLABUS OF EXAMINATION FOR THESE POSTS IS ATTACHED AT ANNEXURE 'A'.

7.0 Nationality

A candidate shall be a:

- i) Citizen of India; or
- ii) Citizen of Nepal; or
- iii) Subject of Bhutan; or
- iv) Tibetan refugee who came over to India before the 1st January, 1962, with the intention of permanently settling in India; or.
- v) A person of Indian origin who has migrated from Pakistan, Burma, Sri Lanka and East African countries of Kenya, Uganda and United Republic of Tanzania (formerly Tanganyika and Zanzibar) Zambia, Malawi, Zaire, Ethiopia and Vietnam with the intention of permanently settling in India;

Provided that a candidate belonging to categories (ii), (iii), (iv) and (v) shall be a person in whose favour a certificate of eligibility has been issued by the Government of Punjab in the Department of Home Affairs and Justice.

8.0 Submission of Applications Form

8.1 The candidates can ONLY apply by filling Online Application Form, a link of which is available on the website of the Commission <http://ppsc.gov.in> No other mode of application will be accepted.

Procees	Step	Last date
Filling Online Application Form .	(Step-1)	21-09-2016
Depositing the Application fees by system generated Fee Challan Form.	(Step-2)	29-09-2016
Print of duly filled online Application Form (after depositing the Application Fees)	(Step-3)	
Submitting the Hard Copy of the duly filled online Application Form alongwith copy of self attested certificates and Challan Form (PPSC copy only).	(Step-4)	06-10-2016

8.2 THE PRINTOUT OF THE FILLED ONLINE APPLICATION FORM ALONGWITH COPY OF BANK CHALLAN AND RELEVANT DOCUMENTS MUST REACH

**"OFFICE OF SECRETARY, PUNJAB PUBLIC SERVICE COMMISSION ,
BARADARI GARDENS, PATIALA-147001 "**

AT THE LATEST BY 5.00 PM BEFORE OR BY 06.10.2016

8.3 The list of self attested certificates that shall be submitted by candidates alongwith the print out of Online Application Form is as follows:

- a) Proof of Date of Birth: Certificate of Matriculation/Higher Secondary.
- b) Proof of having passed Punjabi Language.
- c) Relevant Degree and DMC Certificate.
- d) Reserve Category Certificate issued by the Competent Authority (If Applicable)
- e) If ESM, certificates/documents mentioning the following:-
 - i) Date of Enrolment
 - ii) Date of Release/Discharge
 - iii) Reason of Release/ Discharge
- f) Certificate as proof of age relaxation claim. (If Applicable)
- g) Certificate of proof of fee concession (If Applicable)
- h) Proof of being Govt. Employee.
- i) Copy of Bank Challan.(PPSC copy only)

8.4 The Candidates SHALL sign the declaration on the print out of Online Application Form before submitting the same.

8.5 Application and Examination Fee

8.5.1 The candidates are required to pay the Application fee as per Govt. Letter No. 10/20/2007 -3PP3/97751/1 dated 17-9-2013 as mentioned below:-

Name of Category	Online Application charges	Examination Fee	Total
Scheduled Castes/ Scheduled Tribes of all States and Backward Classes of Punjab	Rs. 500/-	Rs. 625/-	1125/-
Ex-Servicemen of Punjab	Rs. 500/-	No Fee to be paid	500/-
All Others Categories (including Lineal Descendent of Ex-servicemen, Punjab)	Rs 500/-	Rs. 2500/-	3000/-
Physically Handicapped, Punjab	Rs. 500/-	Rs. 1250/-	1750/-

8.5.2 The candidates entitled to fee concession/exemption MUST submit with their Application Form, a self attested copy of the certificate certifying their claim for fee concession/exemption. Candidates who do not submit such a certificate shall not be entitled to fee concession/exemption under any circumstances.

8.5.3 Application fee MUST be submitted through any Branch of State Bank of Patiala only. Candidate should carefully fill in the details in the Online Application form and click on the "SUBMIT" button at the end of the Online Application Format. Before pressing the "SUBMIT" Button, candidates are advised to verify every detail filled in the application. After submitting the online application form, the candidate should take a printout of the system generated fee payment challan immediately. No Change/Edit will be allowed after Submission. **The application fee is non-refundable.**

9.0 **Conditions which may render a candidate ineligible**

The following conditions, among others, may render the candidates ineligible:

- a) Insufficient fee;
- b) **Application fee deposited by means other than a Bank Challan through any branch State Bank of Patiala.**
- c) Late receipt of print out of Online Application Form;
- d) Wrong/incomplete information given in the application form;
- e) Candidates debarred by the PPSC/other Public Service Commissions;
- f) Non-fulfillment of any of the eligibility conditions, including those of age and educational qualifications.

10.0 **Important Note**

- 10.1 Only Scheduled Castes, Backward Classes, Ex-Servicemen/ LDESM, Physically Handicapped, Freedom Fighter & Sports Persons of Punjab domicile are eligible for the benefit of reservation.
- 10.2 **A candidate should indicate the specific category for which he/she wants to be considered and category once opted cannot be changed under any circumstances.**
- 10.3 **SC/ST Candidates belonging to other States are required to fill their Post Category as General Category (Code 71). They are entitled only to fee concession but not entitled to avail reservation/age relaxation.**
- 10.4 **Ex-servicemen/Lineal Descendent of Ex-Servicemen (LDESM) who have domicile of Punjab are eligible for reservation under the Ex-Servicemen category. LDESM shall be considered against the vacancies for Ex-servicemen ONLY IF no Ex-servicemen are available. In case sufficient numbers of Ex-**

servicemen are available, then LDESM shall be treated as General Category candidates.

11.0 Definition Of Categories

Candidates should select their categories carefully, because candidates belonging to categories other than category 71 (General), are entitled to fee concession/exemption, age relaxation and job reservation. **The category once selected by a candidate will not be changed under any circumstances.** Candidates shall submit certificates issued by the Competent Authority in support of their claim to a particular category.

Categories and Category Code

<u>Code No.</u>	<u>Category Name</u>
71	General Category
72	ESM, Punjab
73	LDESM, Punjab
74	Freedom Fighter, Punjab
75	Sports Person, Punjab
76	Physically Handicapped, Punjab: A : Visually Impaired B : Hearing Impaired C : Orthopaedically Disabled
77	SC Others, Punjab
78	SC ESM, Punjab
79	SC LDESM, Punjab
80	SC Sports Person, Punjab
81	Balmiki/ Mazhbi Sikh, Punjab
82	Balmiki/ Mazhbi Sikh ESM, Punjab
83	Balmiki/ Mazhbi Sikh LDESM, Punjab
84	Balmiki/ Mazhbi Sikh Sports Person, Punjab
85	BC, Punjab
86	BC ESM, Punjab
87	BC LDESM, Punjab

CODE FOR AGE RELAXATION (If claimed)

<u>Code No</u>	<u>Category Name</u>
91	State Government/Central Government Employees.
92	SC Punjab only
93	Balmiki/Mazhbi Sikh Punjab Only
94	Widows & certain other categories of women of Punjab.
95	B.C., Punjab Only
96	ESM, Punjab Only
97	Physically Handicapped, Punjab Only
98	SC Punjab only+ State Government/Central Government Employees
99	SC Punjab only + ESM, Punjab.
100	SC Punjab only + Physically Handicapped, Punjab
101	Balmiki/Mazhbi Sikh Punjab only+ State Government/Central Government Employees.
102	Balmiki/Mazhbi Sikh Punjab only + ESM, Punjab.
103	Balmiki/Mazhbi Sikh Punjab only + Physically Handicapped, Punjab.
104	B.C., Punjab. + State Government/Central Government Employees.
105	B.C., Punjab. + ESM, Punjab
106	B.C., Punjab. + Physically Handicapped, Punjab.

11.1 BACKWARD CLASSES (PUNJAB)

- i) The candidates desiring to be considered for the Backward Classes category are required to submit a certificate as per Punjab Government letter No.1/41/93.RCI/459 dated 17/1/1994, No. 1/41/93RC-1/1597, dated 17-8-2005, No.1/41/93 RCI/209, dated 24.2.2009 and No.1/41/93 RCI/609, dated 24.10.2013 in the Section of prescribed proforma.

- ii) The BC Certificate in proforma other than the prescribed proforma will not be accepted. The candidates belonging to Backward Classes are required to attach a declaration along with Backward Class certificate that no change occurred in their status and they do not fall in the section of creamy-layer as per Govt. letter No. 10/9/2009-RCI/62 Dated 08/1/2010.
- iii) The Competent Authorities to issue the necessary certificate are:
 - a) Deputy Commissioner
 - b) Additional Deputy Commissioner
 - c) Sub-Divisional Magistrate
 - d) Executive Magistrate (PCS Officers only)
 - e) Tehsildar

11.2 SON/DAUGHTER/GRAND SON/GRAND DAUGHTER OF FREEDOM FIGHTERS (PUNJAB)

- i) Candidates claiming to be son/grandson/daughter/granddaughter of Freedom Fighters are required to submit a certificate issued by the competent authority (i.e., Assistant Commissioner of the district concerned) as per Punjab Government Instructions No.9 (13) 3P-II-84/5822 dated 4/4/1985, No.1(135)-8P-II/7/310/20,dated 19.6.91 and No. 4-13-8 P-11-97/10112 dated 22/8/1997.
- ii) Only those Freedom Fighters and their son/daughter/grand-son/grand-daughter are eligible for consideration for reservation under this category who:
 - a) belong to the State of Punjab; and
 - b) have either been granted a Freedom Fighter pension by the Punjab Government or have been awarded Tamra Patra by the Government of India; or
 - c) are otherwise eligible for the grant of Freedom Fighter pension and Tamra Patra but for any reason whatsoever did not apply for Freedom Fighter pension and Tamra Patra but can obtain Freedom Fighter/ son/daughter/grand-son/grand-daughter of Freedom Fighter certificate from the General Administration (Political wing) of the Punjab Government.

11.3 EX-SERVICEMEN (PUNJAB)

- i) "Ex-serviceman" means a person who has served in any rank, whether as a combatant or a non combatant, in the Naval, Military and Air Force of the Union of India (here-in-after referred to as the Armed forces of the Union of India), and who has:
 - a) retired or released from such service at his or her own request after earning his or her pension; or
 - b) been released from such service on medical grounds attributable to military service or circumstances beyond his control and awarded medical or other disability pension; or
 - c) been released otherwise than on his own request from such service as a result of reduction in establishment; or
 - d) been released from such service after completing the specific period of engagement otherwise than at his own request or by way of dismissal or discharge on account of misconduct or inefficiency and has been given a gratuity;
- ii) "but does not include a person who has served in the Defence Security Corps, the General Reserve Engineering Force, the Lok Sahayak Sena and the Para Military Forces, but includes personnel of the Lok Sahayak Sena of the following categories namely:
 - a) Pension holders for continuous embodied service
 - b) Persons with disability attributable to military service; and
 - c) Gallantry award winners
- iii) Ex-servicemen should be of Punjab domicile and they should submit a Punjab Resident Certificate from the competent authority, failing which would result in cancellation of their candidature.

Explanation: The persons serving in the Armed Forces of the Union, who on retirement from service would come under the category of "Ex-servicemen", may be permitted to apply for re-employment one year before the completion of specified terms of engagement and avail themselves of all concessions available to Ex-servicemen but shall not be permitted to leave the uniform until they complete the specified terms of engagement in the Armed Forces of the Union.

11.4 LINEAL DESCENDENT OF EX-SERVICEMEN (PUNJAB)

- i) Where an Ex-serviceman is not available for recruitment against a reserved category, such a vacancy shall be reserved to be filled in by recruitment of either the wife or one descendent child of an Ex-serviceman.

- ii) As per Punjab Government notification No.GSR9/Const./ Art309, 234 and 318/Amd(5)/2003 dated 06/11/2002 and letter No. 1/28/92-3ET/2805 dated 14/05/2003 and;
 - a) “Lineal Descendent” means sons/daughters (married/un-married/widowed legally divorced) of the re-employed/ unemployed Ex-Serviceman.
 - b) “Wife” shall include the widow of an Ex-serviceman, provided she has not re-married up to the date of the issue of the appointment letter.”
 - c) In any case, including the case where the Ex-Serviceman has died, his sons/daughters shall be treated as “Lineal descendent” only if a certificate to this effect has been issued by the authority appointed by the Government.

11.5 SPORTS PERSON (PUNJAB)

A candidate can claim reservation under the Sports Person category only if:

- (i) He/ She belongs to State of Punjab; and
 - a) He/ She has won National Championship in team or individual events while representing the State of Punjab in such sports events as have been conducted by such respective National Federations as are affiliated to the Indian Olympic Association ; or
 - b) He/ She has won National Championship in team or individual events which are organized by the Indian Olympic Association; or
 - c) He/ She has won first, second or third position in team or individual events and/or he has won Gold or Silver or Bronze Medal, at International Sports meets, conducted by International Federations affiliated to the International Olympic Committee or by the International Olympic Committee itself.
- (ii) If candidate belongs to Sports Person, Punjab Category, an attested copy of Gradation Certificate strictly in accordance with the Punjab Sportsman Rules, 1988 issued by the competent authority should be attached with the application form.
- (iii) Director Sports, Punjab is the competent authority to issue Sports Gradation Certificate and any other Sports Certificate issued by any other authority will not be accepted a valid Certificate for claim of reservation under the Sports Person, Punjab Category.
- (iv) Applicants claiming reservation under Sports Person, Punjab Category must submit Punjab Resident Certificate from the competent authority, failing which would result in cancellation of their candidature.

11.6 SCHEDULED CASTE, (PUNJAB)/ SCHEDULED TRIBES

The competent authorities for issuing Scheduled Castes/Scheduled Tribes certificates are:

- i) District Magistrate/Additional District Magistrate/ Collector/Deputy Commissioner/ Additional Assistant Commissioner/ Assistant Collector/ Ist Class Stipendiary Magistrate/ City Magistrate/ Sub Divisional Magistrate/ Taluka Magistrate/ Executive Magistrate/Extra Assistant Commissioner (Not below the rank of Ist Class Stipendiary Magistrate);
- ii) Chief Presidency Magistrate/Additional Chief Presidency Magistrate/ Presidency Magistrate;
- iii) Revenue Officer not below the rank of Tehsildar;
- iv) Sub Divisional Officer (C) of the area where the candidate and or his family formally resides;
- v) Administrator/Secretary to Administrator/Development Officer Lakshadweep Islands;
- vi) As per para-3 of Punjab Govt. Instructions No. 1/8/2007-RC-1/815, dated 10th July, 2008, Head of Department or Head of Offices are competent to issue Scheduled Castes Certificates to those applicants whose parents are serving or residing in Chandigarh/Mohali on the basis of their parents service record.

11.7 WIDOWS AND CERTAIN OTHER CATEGORIES OF WOMEN

The definitions as per Government Instructions issued vide letter No. 1/50/83-5PP(1368)/3454 dated 23-4-84 as amended from time to time the widows and certain other categories of women for reservation in employment is as under:

- i) Widows;
- ii) Women who are legally separated from their husbands or have been divorced;
- iii) Women whose husbands have been ordered by Civil or Criminal Courts to pay maintenance to them;
- iv) Women whose husbands have remarried; and
- v) Wives of serving military personnel or those who are disabled while in military service.

11.8 PHYSICALLY HANDICAPPED (PUNJAB)

The definitions as per Government Instructions issued vide letter No. 10/26/95/5-SS/1252, dated 2-5-97 of the handicapped for purposes of reservation in employment is as under:

A) THE BLIND :

The blind are those who suffer from either of the following conditions: -

- a) Total absence of sight.
- b) Visual acuity not exceeding 6/60 or 20/200 (Snellen) in the better eye with correcting lenses.
- c) Limitation of the field of vision subtending an angle of 20 degrees or worse.

B) THE DEAF:

The deaf are those in whom the sense of hearing is non-functional for ordinary purposes of life. They do not hear, understand sounds at all events with amplified speech. The cases included in this category will be those having hearing loss more than 60 decibels in the better ear (profound impairment) in the conversational range of frequencies.

C) ORTHOPAEDICALLY HANDICAPPED :

The orthopaedically handicapped are those who have a physical defect or deformity not less than 40 % which causes an interference with the normal functioning of the bones.

Competent authorities to issue such certificate as under:-

- (i) Principal Medical Officer
- (ii) Chief Medical Officer
- (iii) Civil Surgeon
- (iv) Class-I Medical Officer of any Government Medical Institution

This certificate should be issued by the competent authorities of the concerned District or place of which the candidate is permanent resident.

Note: (1) For any inquiry candidates may contact the Commission's Office on telephone number 0175-5014825, 5014826 or by sending email with subject as "QUERY REGARDING THE POST OF VETERINARY OFFICER " to supdt.scrutiny@ppsc.gov.in

Note: (2) Candidates are advised in their own interest to apply using Online Application Form much before the closing date and not to wait till the last date to avoid congestion on web server on account of heavy load on Internet/Website.

Note : (3) Candidates are advised to go through the "General Information for the candidates" and Online Instructions carefully before filling up Online Application Form. The Commission will not be responsible for any consequence arising out of in correct filling up of Application Form.

Syllabus

1.1 ANIMAL BREEDING AND GENETICS

Aids to selection. Methods of selection. Sire index. Classification of mating systems. Breeding methods. Inbreeding and outbreeding - types, merits, demerits, genetics consequences and their application in animal improvement. Importance of breeding records in farm animals and their standardization. Analysis of breeding records of different livestock and poultry farms and their maintenance. Herd registration. Use of computer in handling and presenting veterinary and livestock data.

1.2 ANIMAL NUTRITION

Importance of grasslands and fodders in livestock production. Various types of fodder crops utilized in the state. Preparation and conservation of green-fodders. Rations for scarcity periods. Anti-nutritional components of feeds and fodders. Requirements and recommended allowances of protein, energy and minerals for maintenance, production and reproduction and feeding schedule for cattle, buffalo, sheep, goat, pig, poultry and dog. Formulation of rations. Balanced and total mixed rations. Therapeutic nutrition.

1.3 LIVESTOCK PRODUCTION AND MANAGEMENT

Role of dairying in India. Dairy development schemes in the country. Common animal husbandry terms. Body conformation and methods of identification. Breeds and economic traits of cattle, buffalo, horse, pig, and camel. Colour and markings (as per RWTCl) of horses. Common vices of cattle, buffalo, sheep, goat, horse, pig, poultry, camel and dogs; their prevention and care. Dentition and ageing of animals. Feeding, care and management of new born, young stock, dry, pregnant and milking cattle, buffalo, horse and pig. Calving, foaling, farrowing and whelping. Castration and dehorning of cattle and buffaloes. Routine dairy farm operations. Dairy farm accounts and records. Rules and regulations regarding transport of livestock by rail, road, air and on foot. Management of animals during transport by different means. Preparation of animals and birds for show. General principles affecting the design and construction of building for housing livestock. Various types of animal houses. Different systems of ventilations, drainages, sewerage disposal techniques, waste diversion for liquid manure, compost, cow dung, gas unit, etc. Importance of sheep and goat production in national and state economy. Different indigenous and exotic breeds of sheep and goats. Feeding, management and breeding of sheep and goat. Ram and buck management. Care of sheep and goat in pregnancy and parturition. Rearing of lambs and kids. Weaning, fattening. Sheep and goat housing. Wool grading. Different breeds and varieties of chicken. Formation, structure and nutritive value of egg. Culling of poultry and effect of culling on egg production. Incubation and hatching of eggs, selection of hatching eggs, handling and care of hatching eggs. Natural and artificial brooding. Different systems of housing of poultry. Floor space requirements, constructional details of poultry houses. Care and Management of chicks, pullets, layers and broilers. Feeds and feeding of broilers and layers. Poultry farm records. Commercial hatcheries and its role in poultry development. Disinfection of farm equipments and poultry houses. Types of common fresh and saline water fish, their collection. Care and breeding, egg and spawn management.

1.4 LIVESTOCK PRODUCTS TECHNOLOGY

Composition of milk. Factors affecting yield and quality of milk. Physical and chemical properties of milk. Principles involved in pasteurization, homogenization and dehydration. Preparation of various concentrated and dehydrated milk products. Preparation of butter, ghee, khoa, lassi,

curd, ice-cream and cheese. Legal and ISI standard of milk and milk products. Detection of adulterants and preservatives in milk and milk products through various tests. Estimation of efficiency of pasteurization through different tests. Bacteriological examination of milk and products for their wholesomeness. Ante-mortem and post-mortem examination of buffalo, sheep, goat, pig and poultry. Utilization of slaughter house by-products, organic wastes available through animal industries, fallen and slaughtered effluent and glandular by-products. Structure, composition, nutritive value, post-mortem changes and eating quality of meat tissues. Fraudulent substitution of meat and its recognition. Principle of various preservation techniques like chilling, freezing curing, smoking, thermal processing, canning and irradiation. Meat cutting, packaging. Microbial and other deteriorative changes in meat and their identification. Standards and quality control measures adopted for meat and meat products in India. Meat food products order. Microbial spoilage of eggs, preservation and maintenance of eggs.

1.5 VETERINARY ANATOMY

Topographic anatomy and gross anatomical structures involved in the clinical examination and surgical interferences of importance in large and small animals. Radiographic anatomy of various regions of domestic animals.

1.6 VETERINARY PHYSIOLOGY AND BIOCHEMISTRY

Physiology of digestion, circulation, respiration and excretion in ruminants and simple stomach animals. Endocrine glands and their hormones –classification. general mode of action and regulation of hormones. Structural and functional organization of mammary glands, hormonal control of mammary growth, lactogenesis and galactopoiesis. Reaction of animals to different environmental variations and temperature. Central control of heat regulation. Temperature regulation in birds. Metabolism of carbohydrates, lipids and proteins in ruminants and non-ruminants. Biochemistry of renal function, acid base balance, stress, shock and digestive disorders. Role of blood sugar, ketone bodies, blood urea nitrogen, proteins, macrominerals and electrolytes as an aid to diagnosis. Role of enzymes for detection of tissue affections/organ affections (scope and limitations).

1.7 VETERINARY MICROBIOLOGY

Development of immune system, humoral and cellular immune responses. Antigens: Definition, specificity, azoprotein, heterophil and blood group antigens. Antibodies: Chemical and physical properties, electrophoresis, structure and function of immunoglobulins. Serological reactions: Introduction to principles and diagnostic applications of agglutination, precipitation, isohaemagglutination, phagocytosis, complement fixation, neutralization, toxin and antitoxin reaction, immunofluorescence. Hypersensitivity-allergy, classification, anaphylaxis and delayed type hypersensitivity, auto-immunity. Disease diagnosis –Polymerase chain reaction (P.C.R.). hybridoma technique, monoclonal antibody and DNA probes. Staining, special staining, cultural characters, aerobic and anaerobic cultivation, biochemical characters, pathogenicity test and antibiogram of bacteria and fungi. Sterilization, disinfection and asepsis.

1.8 VETERINARY PHARMACOLOGY AND TOXICOLOGY

Anticonvulsants, opioid agonists and antagonists, antipyretics, steroids and non-steroidal anti-inflammatory drugs. Commonly used emollients, demulcents, stomachics, prokinetics, antiemetics, antiulcer, carminatives, antizymotics, purgatives, antidiarrhoeals, antihypertensives, diuretics, urinary acidifiers, urinary alkalizers, ecobolics, cardiac glycosides, vasodilators, coagulants, anticoagulants, antihistaminics, expectorants, mucolytics, antitussives drugs. General approaches to diagnosis and treatment of poisoning. Clinical signs, diagnosis and treatment of toxicities caused by commonly used organophosphates, carbamates, chlorinated hydrocarbons, pyrethroids, herbicides, fungicides, rodenticides, arsenic, lead, fluoride, nitrates,

nitrites, urea, snake venom. Introduction and basic principles of antimicrobial therapy. Classification of antimicrobial drugs, development of resistance and interaction of antibacterials. Sulphonamides, quinolones, beta- lactam antibiotics, aminoglycosides, tetracyclines, amphenicols, macrolides, nitrofurans and other antibacterials. Antifungal, antiviral and antitubercular drugs. Chemotherapy of helminthic and protozoan infections. Antiseptics and disinfectants. Ectoparasiticides and antineoplastic drugs.

1.9 VETERINARY PARASITOLOGY

Classification (names only) of common parasites and parasitic diseases of domestic animals in Punjab. Common diagnostic techniques for different parasitic diseases. Chemoprophylaxis against parasites. Acaricide resistance.

1.10 VETERINARY PATHOLOGY

Etiology, epidemiology, transmission, pathogenesis, clinical findings, clinical pathology, diagnosis, treatment, prevention and control of the following diseases of poultry: Respiratory disease complex, New castle disease, Infectious bronchitis, Infectious laryngotracheitis, Influenza, Duck virus hepatitis, Egg drop syndrome, Fowl pox, Coryza. Avian encephaloemyelitis. Infectious bursal disease, Neoplastic diseases – Mareks disease and Avian leucosis, etc. Salmonellosis- Pullorum disease, Typhoid and Paratyphoid, Pasteurellosis-Fowl cholera, Avian Mycoplasmosis, Chlamydiosis. Coli bacillosis, Spirochaetosis, Fungal infections –Aflatoxicosis, Aspergillosis and Favus. Parasitic infestation caused by Nematodes, Cestodes and Protozoa (blood and gastrointestinal). Nutritional deficiency diseases. Post mortem examination of large animals, small animals and poultry.

1.11 VETERINARY PUBLIC HEALTH

Sources of bacterial contamination of raw milk and method of control. Clean milk production; sources of contamination during collection, transport and processing of milk and methods of control. Milk borne diseases and methods of control. Toxic residues in milk and their health hazards. General principles and elements of meat inspection. Methods of slaughter. Conditions detected at meat inspection and their judgement; characteristics of meats of different food animals; composition, rigor mortis. Differentiation of meat of different food animals. Inspection of poultry, eggs, fish and game animals. Meat borne diseases and methods of control. Examination of lymph nodes and their importance in meat inspection. Role of livestock, pets, various wild and cold blooded animals in transmission of zoonotic diseases. Study of the important zoonotic diseases of the region. Methods of prevention, control and eradication of zoonotic diseases, Method of prevention and control of air and water borne diseases of animals. Stray animal control, fallen animals and environment: radiation, drugs, etc. as source of pollution.

1.12 VETERINARY AND ANIMAL HUSBANDRY EXTENSION

Steps of extension teaching. Classification of extension teaching methods, their selection and use. Client dealing: Communication with rural and urban public for data collection, history taking, follow up, appraisal on prognosis, announcing death of animal to the owner, etc. Various kinds of farming e.g. large and small scale farming, mixed farming, co-operative and collective farming. Economic principles underlying co-operative societies, cooperative milk activities in India. Animal Husbandry planning and programmes, Animal Husbandry administration, Key village scheme, ICDP, Gosadan/Gosala, Panchayati Raj, Integrated Rural Development Programme in Animal Husbandry. Calculation of economics of livestock and poultry farming to know the profitability of the enterprise.

1.13 ANIMAL REPRODUCTION, GYNAECOLOGY AND OBSTETRICS

Development of female genitalia and description of pelvis in domestic animals. Sexual maturity in relation to reproduction. Role of hormones in various phases of reproduction. Oestrous cycle in domestic animals and factors affecting it. Synchronization of oestrous cycle. Ovulation. Transportation of sperms, fertilization and attachment. Development of foetus and foetal membranes. Types and functions of placenta. Gestation, duration and stages of gestation in domestic animals. Superfetation and Superfecundation. Superovulation and embryo transfer. Differential diagnosis of pregnancy. Disease and accidents during gestation. Prolonged gestation. Premature birth. Early embryonic mortality. Abortion in domestic animals. Fetal mummification, maceration, pyometra. Fertility, infertility and sterility. Functional infertility – anoestrus, ovarian hypoplasia, cystic ovary. Fertilization failure and repeat breeding. Infectious infertility – specific and nonspecific infections affecting genital organs. Sexual health control and herd reproductive health programme. Parturition in domestic animals including stages of parturition. Expulsion and retention of after birth. Postpartum diseases and complications (cervicovaginal prolapse, uterine prolapse, vaginitis, cervicitis, metritis, pyometra, postpartum paraplegia). Clinical use of hormones and prostaglandins. Intrauterine presentation of fetus, eutocia, dystokia. Types of dystokia. General handling of dystokia. Diagnosis and treatment of dystokia cases. Obstetrical operations. Mutation and forced extraction. Fetotomy and Caesarean section. Mismating, transmissible venereal tumor and pyometra in bitches. Development and comparative study of male genitalia and gonads. Growth, puberty, sexual maturity, libido. Endocrine control of reproduction in male domestic animals. Factors affecting maturity and sex drive in bulls. Sexual behaviour in males. Forms of male infertility and factors affecting infertility, its diagnosis and treatment. Diseases, abnormalities and malformations of male genitalia, their diagnosis and treatment of coital injury and infections. Testicular hypoplasia and degeneration. Disease of the accessory sex glands. Advantages and limitations of A.I. Methods of semen collection in various species. Technique of A.I. Factors affecting quality and quantity of semen. Tests for evaluation of semen, extension of semen, preservation of semen at different temperatures. Storage and shipment of semen. Semen metabolism. Biochemistry of semen.

1.14 VETERINARY MEDICINE

Etiology, epidemiology, pathogenesis, clinical symptoms, clinical pathology, diagnosis and treatment, prevention and control of the following diseases of cattle, buffaloes, equine, sheep, goat, pigs and pet animals: (A) General systemic states-hyperthermia, hypothermia, fever, septicaemia, toxemia, shock and dehydration; (B) Diseases of (i) digestive system with special reference to rumen dysfunction and diseases of stomach in ruminants and simple stomach animals; (ii) peritoneum, liver and pancreas; (iii) respiratory system; (iv) cardiovascular system including blood and blood forming organs; (v) urinary system; (vi) nervous system; (vii) skin; (viii) musculo-skeletal system; (ix) eye; (x) ear; (xi) neonates: (C) Common neoplasms. Etiology, epidemiology, pathogenesis, clinical symptoms, clinical biochemistry, clinical pathology, diagnosis, treatment, prevention and control of : (A) Metabolic diseases – Milk fever; acute parturient hypocalcaemia in goats, sows and bitches; lactation tetany in mares; downer cow syndrome; ketosis; hypomagnesaemia; nutritional haemoglobinuria in cattle and buffalo; osteodystrophia fibrosa; azoturia in equines; hypothyroidism and diabetes in dogs. (B) Diseases caused due to deficiency of iron, copper, cobalt, zinc, selenium, manganese, calcium, phosphorus, magnesium, vitamins A, B complex, C, D, E and K in domestic animals. Legal duties of veterinarians. Evidence procedure in court Code of conduct and ethics for

veterinarians. Common offences against animals and laws related to these offences. Detection of frauds-doping, alteration of description, bishoping, etc. Legal aspects of: examination of animals for soundness, examination of injuries. Animal insurance. Prevention of Cruelty to Animals Act, 1960 (59 of 1960) and various rules on animal welfare under this Act. The Prevention and Control of Infectious and Contagious Diseases in Animals Act, 2009 (salient features). Law relating to generation and disposal of biomedical waste. Causes of sudden death in animals. Signs of death. Post mortem examination of Vetro-legal cases, writing report, collection and despatch of morbid materials to forensic laboratory. Pattern of disease distribution in the community. Periodicity of diseases, occurrence and dynamics of disease transmission. Surveillance and monitoring and forecasting of animal diseases. Investigation of an epidemic, prevention, control and eradication of diseases. Office Internationale Des Epizootics (OIE), its functions, its categorisation of diseases that are transmissible. Etiology, epidemiology, transmission, pathogenesis, clinical findings, clinical pathology, diagnosis, treatment, prevention and control of the following diseases of cattle, horse, pigs, sheep, goats and pet animals: (i) Bacterial diseases- mastitis, joint ill, anthrax, ulcerative lymphangitis, glanders, strangles, black quarter, braxy, tetanus, enterotoxemia, bacillary haemoglobinurea, botulism, colibacillosis, salmonellosis, pasteurellosis, brucellosis, listeriosis, campylobacteriosis (vibriosis), tuberculosis, paratuberculosis, actinomycosis, actinobacillosis, erysipelosis, leptospirosis. Common diseases caused by Ricketts, Pseudomonas, Yersinia, Haemophilus, Bordetella, Moraxella, Mycoplasmas (ii) Viral diseases- Foot and mouth disease, vesicular stomatitis, vesicular exanthema, pox, rinderpest, mucosal disease, malignant head catarrh, ephemeral fever, infectious bovine rhinotracheitis, leucosis, viral pneumonia, calf diarrhoea virus, African horse sickness, African swine fever, rabies, ephemeral fever, pseudorabies, equine encephalomyelitis, infectious equine anemia, equine influenza, papillomatosis, equine abortions, swine & equine influenza, infectious canine hepatitis, parvovirus infection of dogs, canine distemper, transmissible gastroenteritis, sheep pulmonary adenomatosis, Maedi/visna (iii) fungal diseases- ringworm, histoplasmosis, sporotrichosis, candidiasis, cryptococcosis, coccidioidomycosis and mycotoxicosis; (iv) Parasitic diseases of economic importance- amphistomiasis, schistosomiasis, nematodiasis (round worms), verminous bronchitis, echinococcosis, coenurosis, other tapeworm infestations, visceral & cutaneous leishmaniasis, trypanosomiasis, bovine sarcocystosis, toxoplasmosis, babesiosis, theileriasis, anaplasmosis, ectoparasitic infestations (ticks, mange, fleas allergies, myiasis).

1.15 VETERINARY SURGERY AND RADIOLOGY

General Surgery: General surgical principles, pre- operative and post operative considerations, Importance of sutures, suturing materials and different knots. Asepsis/antisepsis, their application in veterinary surgery, sterilization of surgical material and instruments. Inflammation, abscess, tumors, cysts, hernia, etc. and their treatments. Wound classification, symptoms, diagnosis, treatments, complication and their prevention and remedies. Hemorrhage and haemostasis, shock, haematoma, necrosis, gangrene, burn and scald, frost bite. Surgical infections their preventions and management. Surgical affections of muscles, artery and vein. Fracture and dislocation and other affections of joints. Anaesthesiology: General considerations, types of anaesthesia, definition and selection of anaesthetics and methods of administration. Local and regional analgesia. Narcosis and premedication in domestic animals. Intravenous anaesthesia, dissociative anaesthesia. Preparation of the patient for anaesthesia. Preparation, evaluation of dose and induction of anaesthesia. General anaesthesia, anesthetic drugs,

inhalation anaesthesia, its method of administration in horse, cattle and dog and gadgets for monitoring. Anaesthetic emergencies and remedies. Chemical restraint of wild /zoo animals. CNS stimulants and central muscle relaxants. Radiology: Production and properties of X-rays. Factors influencing production of radiograph (radiographic factors, geometric factors, photographic factors). Density, detail and contrast. X-ray accessories filters, restrictors, collimator, grid, etc. X-ray film and its processing. Intensifying screen, its use, advantages and disadvantage. Fluoroscopy. Principle of viewing and interpreting X-ray films. Classification and interpretation of radiographic lesions. Contrast radiography: classification, materials used, indications and contra indications. Biological effects of radiation. Radiation hazards and safety measures. Principles of ultrasonography, radiation therapy and physical therapy in veterinary practice. Positioning and radiography of different parts of the body in small and large animals. Surgery: Affections of the lips and cheek, tongue, palate, nose, sinuses, guttural pouch, horn, teeth and salivary glands and their treatment. Affections of neck, esophagus, trachea, pharynx and larynx. Congenital affections of lower jaw and their treatment. Affections of the ear and their treatment. Anatomical considerations and examination of the eye. Surgical affections of conjunctiva, cornea, ciliary's apparatus, lens, traumatic affections of the eye lids, eye, tumors of eye, retinal detachment. Injuries and infections of anterior and posterior chambers. Surgical approaches and general consideration for thoracic surgery. Contusions and fracture of rib, injuries of costal cartilage, fracture of sternum, perforated wounds, sternal fistula, pneumocoele. Surgical approaches to traumatic pericarditis of cattle, heart worm disease in dogs and abdomen in various species of animals. Hernia and its treatment in various species. Surgical affections of the stomach (in dogs and ruminants), intestine, rectum, anal glands, liver, spleen, pancreas, kidney, ureters, urinary bladder, urethra, penis, sheath, testicle, scrotum, udder and tail. Spaying in various species. Lameness, its definition and classifications. Body conformation in relation to lameness, diagnosis of lameness. General methods of therapy. Specific joint diseases in dogs and large animals and their treatment. Application of external and internal immobilization for fracture. Rehabilitation. Shoulder slip (Sweeny), bicipital, bursitis, arthritis, capped elbow, radial paralysis, carpal, bent knee, knock knee, hygroma of knee, open knee joint and blemished knee. Fracture of carpal bone and fracture of accessory carpal. Contraction of digital flexors. Splints and sore shin. Tendinitis, wind puffs and seamoditis. Osslets, ring bones, quittor, side bones, navicular disease, pyramidal disease and fracture of extensor process. Laminitis, sand crack, seedy toe, fracture of third phalanx and pedal osetitis. Canker, thrush and corn. Cording up, myositis of psosas, iliac thrombosis, crural paralysis, sub luxation of sacro-iliac ligament, rupture of round ligament and trochantric bursitis. Femoral nerve paralysis, upward luxation of patella, stringhalt, gonitis, chondromalacia of patella, fracture of fibula, rupture of tendo achilles and rupture of peroneus tertus. Fibrotic and ossifying myopathy. Thorough pin, bog spavin and curb. Bovine lameness: contusions of sole, ulceration of sole, septic, laminitis, avulsion of hoof and declawing. Interdigital fibroma, cyst, sand crack and hoof deformities. Therapeutic shoes and corrective shoeing. Examination of animals for soundness and preparation of soundness certificate.