



# ODISHA PUBLIC SERVICE COMMISSION

## ADVERTISEMENT NO. 08 OF 2019-20

Special Recruitment to the posts of Veterinary Assistant Surgeon, Class - II (Group - B) of Odisha Veterinary Service under Fisheries & Animal Resources Development Department.

WEBSITE - <http://opsconline.gov.in>

On-line applications are invited from the prospective Scheduled Caste / Scheduled Tribe candidates through the proforma application to be made available on the Website of the Commission (<http://opsconline.gov.in>) from 04.10.2019 to 04.11.2019 for special recruitment to 207 (Two hundred Seven) posts of Veterinary Assistant Surgeon, Class - II (Group - B) of Odisha Veterinary Service under F. & ARD Department in the scale of pay of Rs. 44,900/- in Level 10, Cell - 1 as per the Pay Matrix provided under Rule - 3 of ORSP, 2017 corresponding to pre-revised scale of pay of 9,300/-34,800/- carrying Grade Pay of Rs. 4,600/- with usual Dearness and other Allowances as may be sanctioned by the Government of Odisha from time to time.

### 2. VACANCY POSITION:

As per requisition filed by the Fisheries & Animal Resources Development Department, Government of Odisha, the vacancy position along with reservation thereof is given below:-

| Sl. No. | Category        | No. of Posts |
|---------|-----------------|--------------|
| 1       | 2               | 3            |
| 1       | Scheduled Caste | 45 (15-w)    |
| 2       | Scheduled Tribe | 162 (54-w)   |
| Total   |                 | 207 (69-w)   |

Out of the total 207 number of vacancies mentioned above, 08 (02-w) vacancies are reserved for PWD candidates, 06 (Six) vacancies are also reserved for Ex-Servicemen and 02 (Two) vacancies are reserved for Sports person candidates. Candidates belonging to PWD, Ex-Servicemen and Sports Persons category, shall be adjusted against the categories to which they belong.

- In case of non-availability of eligible/ suitable women candidate(s), the unfilled vacancies shall be filled up by eligible/suitable male candidate(s).
- Exchange of reservation between Scheduled Caste and Scheduled Tribe will not be considered.
- The number of vacancies to be filled up on the basis of this recruitment is subject to change by Government without notice, depending upon the exigencies of public service at the discretion of the State Government.
- The physical requirement and functional classification in respect of P.W.D. candidates are noted below.

| Physical Requirements                              | Functional Classification                  |
|--|--|
| S - Work performed by sitting (on bench or chair)  | OL - One leg affected (R and/or L)         |
| ST - Work performed by standing                    | BL (MNR) - Both legs affected but not arms |
| SE - Work performed by seeing                      | (MNR - Mobility not be restricted)         |
| H - Work performed by hearing / speaking           | (Non-Surgical jobs)                        |
| MF - Work performed by manipulating (with fingers) |  |
| R & W - Work performed by reading & writing        |  |

**3. AGE:**

A candidate must have attained the age of 21 (Twenty one) years and must not be above the age of 37 (Thirty seven) years on the 1<sup>st</sup> day of January 2019 i.e. he/she must have been born not earlier than 2<sup>nd</sup> January 1982 and not later than 1<sup>st</sup> January 1998.

The upper age limit prescribed above shall be relaxable by 10 (Ten) years for candidates belonging to PWD category, whose permanent disability is not less than 40%.

SAVE AS PROVIDED ABOVE, THE AGE LIMITS PRESCRIBED CAN IN NO CASE BE RELAXED.

Date of birth entered in the High School Certificate or equivalent certificate issued by the concerned Board/Council will only be accepted by the Commission.

**4. EDUCATIONAL QUALIFICATION:**

A candidate must possess a Bachelor's Degree in Animal Husbandry & Veterinary Science or its equivalent qualification from any recognized University in India or abroad and must have registered himself / herself under the Odisha Veterinary Practitioners Act, 1970.

**5. EXAMINATION FEE:**

Candidates are exempted from payment of examination fee.

**6. METHOD OF SELECTION:**

The selection of candidates for recruitment to the post shall be made on the basis of written examination consist of 02 (Two) papers, each paper carries 400 marks and Viva Voce Test carries 100 marks.

The Plan of Written Examination is mentioned below. The course syllabus is provided in the Annexure - A of this Advertisement.

| Subject                                | Session         | Duration | No. of Questions | Total Marks | Type of Questions           |
|--|-----------------|----------|------------------|-------------|-----------------------------|
| <b>Paper - I</b><br>Veterinary Science | 1 <sup>st</sup> | 2 ½ hrs  | 200              | 400         | Objective (Multiple Choice) |
| <b>Paper - II</b><br>Animal Science    | 2 <sup>nd</sup> | 2 ½ hrs  | 200              | 400         | -do-                        |

**7. PLACE OF EXAMINATION:**

The written examination will be held at Cuttack.

**8. OTHER ELIGIBILITY CONDITIONS:**

- (i) The candidate must be a citizen of India;
- (ii) The candidate shall be able to speak, read and write Odia fluently and must have passed at least an examination in Odia language equivalent to that of Middle English School Standard conducted by the Board of Secondary Education, Odisha or the Education Department of the Government of Odisha or any other Board or Council of Secondary Education approved by the Government of Odisha in support of passing of Odia Language (M. E. School Standard).
- (iii) The candidate must have good moral character. The candidate must have good mental condition and bodily health and free from any physical defect likely to interfere with the discharge of his duties in the service.
- (iv) A candidate, who has more than one spouse living, will not be eligible for appointment unless the State Government has exempted his/her case from operation of this limitation for any good and sufficient reasons;
- (v) If a candidate has at any time, been debarred for a certain period/chance(s) by the Odisha Public Service Commission or other State Public Service Commission or U.P.S.C. from appearing at any examination/interview, he/she will not be eligible for such recruitment for that specified period/chance(s);
- (vi) Government servants, whether temporary or permanent, are eligible to apply provided that they possess the requisite qualification and are within the prescribed age-limit as provided under Para - 3 & 4 of the Advertisement. They must inform their respective Heads of Offices in writing regarding submission of their applications for this recruitment and obtain "No Objection Certificate".
- (vii) A candidate who claims change in his/her name after having passed the High School Certificate Examination or equivalent examination, is required to furnish copy of publication of the changed name in local leading daily news paper as well as copy of notification in the Odisha Gazette in support of his/her change of name.
- (viii) Every candidate selected for appointment shall be examined by the Medical Board as prescribed by the Government. A candidate, who fails to satisfy the Medical Board, shall not be appointed;
- (ix) **Only those candidates, who fulfill the requisite qualification & within the prescribed age limit etc. by the closing date of filling up online application, will be considered eligible;**

**9. IMPORTANT POINTS:**

- (i) A candidate found guilty of seeking support for his/her candidature by offering illegal gratification or applying pressure on any person connected with the conduct of the recruitment process or found indulging in any type of malpractice in course of the selection or otherwise, shall, in addition to rendering himself /herself liable to criminal prosecution, be disqualified not only for the recruitment for which he/she is a candidate, but also may be debarred, either permanently or for a specified period, from any recruitment or selection to be conducted by the Commission;

- (ii) The provisions of the Odisha Conduct of Examination Act 1988 (Odisha Act-2 of 1988) are applicable to the examination conducted by the Odisha Public Service Commission;
- (iii) **Online applications submitted to OPSC if found to be incomplete in any respect are liable to rejection without entertaining any correspondence with the applicants on that score;**
- (iv) **Admission to Written Examination/ Viva Voce test will be provisional. If on verification at any stage before or after the written examination / viva voce test, it is found that a candidate does not fulfill all the eligibility conditions, his/her candidature will be liable to rejection. Decision of the Commission in regard to eligibility or otherwise of candidate shall be final;**
- (v) This advertisement should not be construed as binding on the Government to make appointment;
- (vi) Concessions meant for S.C. / S.T. by birth are admissible to the Scheduled Caste / Scheduled Tribe of Odisha only;
- (vii) **Any misrepresentation or suppression of information by the candidate in the online application, will result in cancellation of his/her candidature or penalty, as decided by the Commission be imposed on the candidate;**
- (ix) The posts are temporary, but likely to be made permanent. The period of probation is two years. The stipulated period of service in K.B.K. areas is at least three years.
- (x) All persons appointed under the Government of Odisha on or after 1<sup>st</sup> January, 2005 shall not be eligible for pension as defined under sub-rule (1) of Rule - 3 of the Odisha Civil Service (Pension) Rules, 1992; but shall be covered by the defined Contribution Pension Scheme in accordance with the Odisha Civil Services (Pension) Amendment Rules, 2005;
- (xi) Mere empanelment in the select list shall not confer any right for appointment unless the Government is satisfied after making such enquiry as may be deemed necessary that the candidate is suitable in all respects for appointment to the service.
- (xii) If one candidate furnishes more than one application, the Commission will consider the information / data of the latest application having higher ID Number.

**10. CERTIFICATES/DOCUMENTS TO BE ATTACHED:**

Candidates who will qualify in the written examination should be in readiness to submit the Hard copy of online application form along with true copies of following documents duly self certified. The candidates are required to mention on each document "Submitted by me" and put their full signature & date on the same. They must not attach the original certificates to their hard copy of online applications. Only those who are called for the Viva Voce test will be required to bring with them the hard copy of online application form along with copies of certificate, mark sheets etc. and original of the same for verification prior to the date of Interview which will be notified later on in due course, failing which he/she will not be allowed to appear at the Viva Voce test.

- (i) H.S.C. or equivalent certificate in support of declaration of age issued by the concerned Board /Council;
- (ii) Intermediate/+2 Examination Certificate issued by the concerned Board/ Council;
- (iii) B. V. Sc. Degree Certificate issued by the recognized University;

- (iv) Mark-sheets in support of all the aforesaid Examination (H.S.C. to B. V. Sc. Degree) passed including fail marks, if any, issued by the concerned Board / Council /University.
- (v) Registration Certificate under the Odisha Veterinary Practitioners Act, 1970.
- (vi) Two recent passport size photographs (unsigned & unattested) which has been uploaded with Online Application Form.
- (vii) Certificates of character from the Principal/Proctor/Dean or Professor in charge of a Department of Teaching of the College or University in which he/she last studied.
- (viii) Caste Certificate **by birth** in support of claim as S.C. / S.T.
- (ix) Required Odia Pass Certificate from the competent authority, wherever applicable;
- (x) Discharge Certificates issued by the Commanding Officer of the Unit last served. Ex-Servicemen must submit an affidavit undertaking that he has not been appointed against any civil post after retirement from military service; wherever applicable:
- (xi) The candidates applying under Sports quota should possess Identity Card issued by Director of Sports, Odisha to this effect.
- (xii) Disability Certificate (indicating percentage of permanent disability) issued by the concerned Medical Board, wherever applicable;
- (xiii) If a candidate claims to possess qualification, equivalent to the prescribed qualification, the rule/authority (With number and date) under which it is so treated, must be furnished with the Application Form.

**NOTE 1:** Candidates claiming to be belonging to S.C. / S.T. Category by birth are required to submit copy of the relevant Caste Certificate issued by the competent authority in the prescribed form.

Women candidates belonging to S.C. / S.T. Categories are required to submit Caste Certificates by birth showing “daughter of .....”. Caste Certificates by virtue of marriage (i.e. showing “wife of .....”) is not acceptable.

The competent authorities are: - District Magistrate/ Collector or Additional District Magistrate or Sub-divisional Magistrate/Sub-Collectors or Executive Magistrates or Revenue Officers, not below the rank of Tahasildar /Additional Tahasildar of Government of Odisha;

**NOTE 2:** Degree Certificate, Caste Certificate, Odia Test Pass Certificate, Discharge Certificate of Ex-Servicemen, Sports Person Certificate and Disability Certificate (indicating % of permanent disability) must have been issued by the competent authority within the last date fixed for receipt of online application form as indicated above.

**11. GROUNDS OF REJECTION OF APPLICATION:-**

Applications of candidates will be rejected by the Commission on any of the following grounds:-

- (a) In-complete online application form.
- (b) Non-receipt of hard copy of online application form at the time of verification of original documents.
- (c) Declaration not signed (full signature) by the candidate in the hard copy of online application form.
- (d) Age limit of candidate not coming under Para - 3 of Advertisement (Overage relaxation shall not be allowed to P.W.D. candidates with less than 40% permanent disability).
- (e) No required educational qualification as provided under Para - 4 of Advertisement.
- (f) Not furnished copies of certificates/documents as provided under Para - 10 of Advertisement.
- (g) Odia Test (M.E. standard) not passed / Odia Test pass evidence not furnished as required under Para 8 (ii) of the Advertisement.
- (h) Submission of wrong information / False information about qualification / Age / O.T. Pass evidence / Category /Sub-category Status (SC/ST/PWD/Sports Persons / Ex-Serviceman /Women etc.).
- (i) Suppression of facts / information about eligibility, if any.
- (j) Any other ground as per the decision of the Commission.

**12. HOW TO APPLY:**

- (a) Candidates must go through the details of this Advertisement available in the Website of OPSC before filling up online application form.
- (b) Candidates must apply online through the concerned Website of the OPSC <http://opsconline.gov.in>. Applications received through any other mode would not be accepted and summarily rejected.
- (c) Before filling up the online application form, the candidates must go through the following documents available at OPSC portal.
  - (i) Instruction to fill up online application.
  - (ii) Guidelines for scanning and Uploading of Photograph, Full Signature & Left Hand Thumb Impression.
- (d) Candidates are requested to upload the scanned image of latest passport size photograph along with scanned image of his/her full signature and scanned image of Left hand Thumb Impression(LTI) in the online application form. Uploaded photograph, Specimen (full) signature and LTI must be clearly identifiable / visible, otherwise the application of the candidate is liable to be rejected by the Commission and no representation from the candidate will be entertained.

- (e) Candidates should keep at least two copies of latest passport size photograph which is uploaded to the online application form for future use.
- (f) On successful submission of the online application form, a Unique Registration ID will be displayed on the screen as well as on the top of the application form. Candidates are required to take printout of the finally submitted online application form and put his/her signature under the declaration for submission to OPSC along with copies of requisite certificate & documents.
- (g) The candidates are advised to submit the Online Application Form well in advance without waiting for the closing date to avoid last hour rush.
- (h) Certificate of Admission to the Examination to the eligible candidates will be uploaded in the Website of the OPSC prior to the date of examination which will be published in the Website and Newspapers. The candidates are required to download their Admission Certificate from the Website of the Commission and produce the same at the Examination centre for admission to the examination. No separate correspondence will be made on this score.

**13. FACILITATION COUNTER:**

For any Technical guidance for filling up of the online application form the candidate may contact facilitation counter of O.C.A.C. (Odisha Computer Application Centre) **over toll free Telephone No. 18003456770 or 155335** between 10.30 A.M. to 1.30 P.M. & 2.00 P.M. to 5.30 P.M. on any Odisha Government working day.

In case of any guidance/information on this advertisement & recruitment, candidates may go through the **FAQ** available in the website of the Commission or contact the O.P.S.C. Facilitation Counter over Telephone No. 0671-2304141/2305611 & Extn.- 205 on any working day between 10.30 A.M. to 1.30 P.M. & 2.00 P.M. to 5.30 P.M.

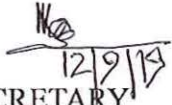
The candidates are required to visit the website of the Commission at **<http://opsconline.gov.in> OR <http://opsc.gov.in>** for detail information about important notice, rejection of application, the date & time of Interview and also keep track of publication of various notices to the effect in the leading local daily newspapers for information.

**CLOSING DATES**

**(A) ONLINE APPLICATION SHALL BE AVAILABLE IN THE WEBSITE FROM 04.10.2019 TO 04.11.2019 TILL 11.59 P.M.**

**NB: - THE ONLINE APPLICATION FORMS IF FOUND DEFECTIVE IN ANY RESPECT ARE LIABLE TO BE SUMMARILY REJECTED.**

CUTTACK  
DATE - 12.09.2019

  
SECRETARY  
ODISHA PUBLIC SERVICE COMMISSION  
CUTTACK

## ANNEXURE - A

### Course Syllabus and Plan of Written Examination for special recruitment to the post of Veterinary Assistant Surgeon, under Fisheries & A.R.D. Department.

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The Written examination will consist of two papers (Paper - I and Paper - II), each paper carries 400 marks.

#### **A. Plan of Examination**

| Subject                                | Session         | Duration | No. of Questions | Total Marks | Type of Questions              |
|--|-----------------|----------|------------------|-------------|--------------------------------|
| <u>Paper - I</u><br>Veterinary Science | 1 <sup>st</sup> | 2 ½ hrs  | 200              | 400         | Objective<br>(Multiple Choice) |
| <u>Paper - II</u><br>Animal Science    | 2 <sup>nd</sup> | 2 ½ hrs  | 200              | 400         | -do-                           |

#### **B. Outline of course syllabus**

##### PAPER - I (VETERINARY SCIENCE)

1. Veterinary Medicine 2. Veterinary Gynaecology and Obstetrics 3. Veterinary Pharmacology and Toxicology 4. Veterinary Parasitology 5. Veterinary Anatomy 6. Veterinary Public Health 7. Veterinary Surgery and Radiology 8. Veterinary Pathology 9. Veterinary Microbiology

##### 1. Veterinary Medicine

General systemic states (Hyperthermia, fever, shock, dehydration), Diseases of various systems of Ruminants (Digestive system, Respiratory system), Infectious diseases of Animals: Bacterial diseases - HS, BQ, Enterotoxaemia, TB, JD, Anthrax, Brucellosis, Leptospirosis). Viral Diseases- FMD, IBR, Canine Parvo, Canine Distemper,. Fungal diseases - Ring Worm, Aspergillosis. Parasitic diseases -Ascariasis, Fasciolosis, Amphistomiasis, Taenia, Mange. Metabolic & Production diseases- Milk fever, ketosis, downer's cow syndrome. Nutritional deficiency diseases - Post Parturient haemoglobinuria, Avitaminosis A, E, D, B and deficiencies of Se, Cu, Fe, Co. Diseases of poultry-RD, IBD, Coli septicaemia)



## 2. Veterinary Gynaecology and Obstetrics

Puberty & sexual maturity in male and female animals. estrus cycle animals. Gestation and its various stages. Pregnancy diagnosis in different species of animals. Fertility, sterility and infertility of various nature. Anoestrus and repeat breeding. Specific and nonspecific agents affecting genital organs of female. Clinical use of hormones in female fertility management. Breeding and pseudopregnancy in bitch. Induction and synchronization of oestrus. Assisted reproductive technologies. Types and function of placenta. Diseases and accidents during gestation. Abortion. Pre and post partum complications. Uterine torsion and different types of prolapse. Dystocia, Various obstetrical operations. Post partum diseases and complications. Various forms of male infertility, its diagnosis and treatment. Impotentia foendii and impotentia generandi. Artificial insemination. Various methods of semen collection, storage and shipment and its assessment for determination of semen quality.

## 3. Veterinary Pharmacology and Toxicology

History of pharmacology and toxicology, scope of pharmacology, pharmacokinetics: absorption, distribution, metabolism of drugs, pharmacodynamics: mechanism of drug action, types of receptors, receptor action, drug interaction, drug development and designing, drugs acting on digestive system, cardiovascular system, urinogenital system, sympathetic and parasympathetic system, neuromuscular blocking agents, ganglionic stimulants and blockers, autacoids: histaminergics and antihistamines, serotonergics and 5-HT blockers, prostaglandins, bradykinins, pharmacology of neurotransmitters, theories of anaesthetics, intravenous, dissociative anaesthetics, localanaesthetics, hypnotics, sedatives, tranquillizers, psychotic drugs, anticonvulsants, opioids, NSAIDs, antibacterial, antifungal, anthelmintic, anticancer, antiviral, antiprotozoal agents, general toxicology, toxicity of heavy metals, plant poisons, agrochemicals, zootoxins and drugs. Evaluation of toxicity, residual toxicity.

## 4. Veterinary Parasitology

Host-parasitic relationship (Parasitism, Mutualism, Symbiosis, and Commensalism). Different type of host and Parasites. Study of common parasites of ruminants. Fasciolidae, Paramphistomidae, Schistosomatidae, Moniezia, Taeniidae, Humonchus, Thelazia, Onchocerca, Esophagistomum, Bunostomum, Dirofilaria, Ascaridae, Trypanosomatidae, Eimeriidae, Babesiidae, Theileriidae, Ixodidae. Study of common Parasites of Dog. Echinostomatidae, Taeniidae, Ancylostomatidae, Toxocara, Demodex, Sarcoptes. Study of common Parasites of Poultry –

Prosthogonidae, Syngamidae, Eimeriidae. Control of Gastro intestinal nematodes in ruminants. Control of Arthropodes. Common Anthelmintics, Insecticides and their uses.

## **5. Veterinary Anatomy**

Gross Anatomy of viscera organs, heart, blood vessels, nervous system, bones of the appendicular skeleton, eye and ear. Gross study of the bones of appendicular and axial skeleton of Ox/buffalo as type species and comparison of sheep, goat, pig, horse, dog and fowl. Classification and structure of muscles, joints, ligaments and nerves of domestic animals. Histology of the visceral organs, lymphatic system and nervous system. Embryology of domestic animals and birds. Development Anatomy of visceral organs. Foetal circulation. Topographic anatomy of the thorax, abdominal and pelvic visceral organs, nerve, locks, auscultation, palpation and percussion, and sites of intramuscular injections in small and large domestic animals.

## **6. Veterinary Public Health**

Meat inspection, methods of slaughter, transportation of meat animals. Meat preservation and Meat-borne diseases. Hygienic processing of milk products, sanitation and sources of contamination of milk. Milk-borne diseases, Bacteriophage and germicidal properties of milk. Objectives, Classification and methods of prevention, control and eradication of zoonotic diseases. Socio-economic condition and human health zoonoses. Sources, quality, contamination and prevention of water. Disposal of sewage, sanitation of animal house. Air pollution, prevention of air and water-borne diseases. Recycling of farm wastes.

## **7. Veterinary Surgery and Radiology**

General Surgery and Anaesthesiology : Sterilization, preparation of surgical pack, bandaging, sutures, suturing materials, different knots, wound, fractures, dislocation and other affections of joints, catheterization and haemostasis. Pre-anaesthetics, general anaesthesia and different combinations used in small animal, local and regional anaesthesia, general anaesthesia in large animal. Radiology. Regional and Clinical Surgery : Types of X-ray machine, adaptation of safety measures, use of diagnostic x-ray, radiographic film processing, interpretation, ultra sound. Affection of lip, cheek, tongue, palate, nose, horn, teeth, salivary gland, eye, ear, neck and oesophagus. Regional and Clinical Surgery-II and Lameness :Surgical approach to thorax, abdomen, urogenital system. Hernia and its treatment. Affection of limbs, hoof and foot. Lameness, soundness certificate and physiotherapy.

## 8. Veterinary Pathology

Causes of diseases, haemodynamic derangements, cellular degeneration and necrosis, apoptosis, gangrene, calcification, jaundice, growth disturbances, inflammation, wound healing, autoimmune diseases, neoplasms and their classification including benign and malignant tumors. Pathological changes in digestive, respiratory, musculoskeletal, cardiovascular, haemopoetic, urinary, reproductive, nervous and endocrine systems, skin, eye and ear. Pathology of viral diseases like Foot and Mouth disease, PPR, Rabies, Canine distemper, Infectious canine hepatitis, Canine parvovirus, etc, Bacterial diseases like Tuberculosis, Johnes disease., anthrax, clostridial diseases, pasteurilosis, brucellosis, salmonellosis and colibacillosis etc, mycoplasma diseases, fungal diseases, helminthic and protozoan diseases, nutritional and metabolic diseases involving carbohydrates, protein, fat, minerals, vitamins metabolism; Toxicosis. Pathology of bacterial, viral, mycoplasmal, parasitic, fungal, nutritional diseaseses and vices of poultry

## 9. Veterinary Microbiology

History of Microbiology , Classification and nomenclature of bacteria, Pathogenicity, Virulence and infection, Resistance and susceptibility of host, Bacterial genetics, Plasmids, Antibiotic resistance. General properties, Replication, Cultivation and Purification of viruses. Cell-Virus interactions, Viral genetics , Interferon. Immune system, Development of humoral and cellular immune responses, Antigens, Antibodies, Major histocompatibility complex, Serological reactions. Autoimmunity and immunotolerance. Immunization of animals, Biologicals. Pathogenicity and diagnosis of bacterial and fungal diseases caused by Staphylococcus, Streptococcus, Bacillus, Clostridium, Mycobacterium, Enterobacteriaceae, (E,coli, Samonella, Yersinia, Klebsiella and Proteus), Campylobacter, Brucella, Pasteurella and Pseudomonas, Listeria, Actinobacillus, Actinomyces, Arcanobacterium and Corynebacterium, Dermatophilus, Fungi: Dermotophytes, Rhinosporidium, Candida, Mycotic mastitis and abortion, Mycotoxicoses. Various families of DNA and RNA viruses causing diseases in livestock and poultry, laboratory diagnostic techniques, immunity to viral infections.

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## **PAPER - II (ANIMAL SCIENCE)**

1. Veterinary Physiology 2. Veterinary Biochemistry 3. Veterinary and Animal Husbandry Extension  
4. Animal Nutrition 5. Livestock products Technology. 6. Livestock production and Management 7.  
Animal Genetics and Breeding.

### **1. Veterinary Physiology**

Properties of blood as body fluid, Anaemia, Immunogenic functions of leucocytes, Blood coagulation, Cardiac cycle, Regulation of cardiac output, ECG and its interpretations, Haemodynamics and Circulatory shock, Role of kidney in body homeostasis, Neuromuscular junction, Excitation – contraction coupling, Mechanism of muscle contraction, General organization of Nervous system, Propagation of impulse, Mechanism of synaptic transmission, Sensory receptors, Sense organs, Digestion in monogastric and ruminant animals, Mechanism of breathing, Transport of blood gasses, Respiration in birds, Endocrine control of body functions, Role of hypothalamo - hypophysial axis on endocrine control, Feedback mechanism of hormone secretion, Male and female reproductive hormones, Endocrine control of male and female reproductive life, Mechanism of heat and cold adaptation in domestic animals.

### **2. Veterinary Biochemistry**

Study of chemistry, properties and function of carbohydrates, lipids, proteins, vitamins, and nucleic acids. Enzyme – Definition properties, factors affecting enzyme catalysis kinetics, inhibition and regulation. Study of Metabolism of carbohydrates, lipids and proteins. Electron transport chain, energy metabolism in domestic animals. Principles of DNA recombinant technology, Embryo Transfer Technology(ETT), monoclonal antibodies. Biochemistry of hormones, source, structure and biochemical function. Biochemistry of blood and other body fluids. Role of Blood sugar, ketone bodies, proteins, enzymes, BUN in disease diagnosis. Biochemistry of respiration, renal function, detoxification in the body.

### **3. Veterinary and Animal Husbandry Extension**

Philosophy ,Principles of Extension Education. Extension teaching methods, Adoption and diffusion of livestock innovations. Leadership and role of leaders in livestock development. Extension Communication. Farming system and farming type. Livestock and livestock products marketing. Social change Social groups. Social transformation in relation to animal rearing. Animal Husbandry programme, planning and evaluation. Panchayati Raj Institutions.

Animal Husbandry Development Programmes. Information communication technologies. E-learning. Information kiosks. Economics -wants, goods, wealth, utility, price, value, real and money income. Factors of production. Demand projections of livestock produce. Consumer behaviour,demand. supply and price determination. Marketing of livestock, and perishable and non-perishable livestock products. marketing channels ,cattle fairs. Import and export of animal and animal products. Resource Management. Book keeping. Economics of a dairy unit, poultry, piggery, sheep and goat units. Livestock Entrepreneurship.

#### **4. Animal Nutrition**

Measure of feed energy, partitioning of feed energy. Energy and protein requirement for maintenance, growth, pregnancy, lactation, egg, wool and meat production, evaluation of protein quality for ruminants and non-ruminants. Non-protein nitrogen utilization in ruminants diets. Importance of minerals and vitamins in health and production, their requirement and supplementation in feed. Feed additives in rations of livestock and poultry. Preparation and conservation of fodder through hay and silage. Anti- nutritional and toxic factors present in different feed stuffs, Digestibility trials- direct, indirect and indicator methods. Feeding standard: their merits and demerit. Balanced ration and formulation of ration. Feeding of dairy cattle, buffaloes, sheep and goat in maintenance, growth, production and reproduction. Feeding of swine and poultry. Feeding of lab animals (rat, guinea pigs and rabbits). Feeding during scarcity and natural calamities.

#### **5. Livestock Products Technology**

Composition of milk, properties & factors affecting milk composition. Clean milk production, packaging of milk. Preparation of milk products and utilization of By-products. Construction of slaughter house and its sanitation. Pre-slaughter care, transport, Antemortem and post mortem examination, slaughtering and dressing techniques of food animals. Utilization of slaughter house by –products and organic wastes. Structure, composition and nutritive value of meat, poultry and egg. Different preservation techniques of meat and egg. Eating quality attributes sensory evaluation and preparation of diff meat products. Meat Food products order, meat cutting and packaging.

## 6. Livestock Production Management

Common animal husbandry terms, Livestock Production Systems, transport of livestock, organic livestock production. important breeds, feeding and management practices of calves, heifers, pregnant, lactating, dry, bulls and bullocks. Draughtability of cattle & buffalo. Housing systems. Factors affecting quality and quantity of milk production. Clean milk production. Economics of dairy farming. Sheep & goat population and breeds. Feeding and management, housing systems. Judging of cattle buffalo. Importance of grasslands and fodders in livestock production. Classification of fodder crops. Silage and hay making. Swine management. Dentition and ageing of horses. Handling, restraining, care and routine management of equines including grooming, saddling and exercise. Feeding routine for horse. Vices of horses. Doping and its detection. Care and management of mice, rats and guinea pigs. And their feeding . SPF and germ free laboratory animals. Overview of Indian Poultry Industry. Classification of poultry, common breeds of poultry including duck, quail, turkey & guinea fowl and their descriptions and their management. Backyard and semi intensive systems of rearing. Common poultry diseases. Vaccination schedule. Bio- security measures in poultry farms, vices of poultry.

## 7. Animal Genetics & Breeding

History of Genetics, Chromosome numbers and types in livestock and poultry, Mendelian principles, gene interaction; multiple alleles; lethal; sex-linked, sex limited and sex influenced traits; linkage and crossing over, Mutation, Chromosomal aberrations; Quantitative inheritance. Gene and genotypic frequency, Hardy-Weinberg law, Components of phenotypic and genotypic variance; Concept of genotype and environment interaction, Heritability, repeatability, genetic and phenotypic correlations. Classification of breeds; Economic characters of livestock and poultry, Basis of selection, Response to selection, Methods of selection, Selection for combining ability, sire evaluation, field progeny testing, Inbreeding, its merits and demerits, out breeding; crossbreeding, heterosis, open nucleus breeding system (ONBS), Conservation of germplasm, Current livestock and poultry breeding programmes in the state and country.

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