2016 द्वारा प्रस्तावित कार्यक्रम के लिए उपदर्शित विनियम भी है तथा वह उनको पूरा करते हैं या निरीक्षण के समय उनको पूरा कर सकते हैं जिसके ना हो सकने पर वह प्रतिकूल विनिश्चय को स्वीकार करने के लिए तैयार है ।

14. भारतीय पशु चिकित्सा परिषद द्वारा दिए गए अनुमोदन के कारण विश्वविद्यालय स्वता ही केंद्रीय सरकार या राज्य सरकार या भारतीय पशु चिकित्सा परिषद से किसी वित्तीय अनुदान या सहायता दिया समर्थन का स्वतः दावाकर्ता नहीं बन जाएगा ।

(प्राधिकृत प्रतिनिधि या हस्ताक्षरकर्ता के शासकीय पद और उसकी कार्यालय की मोहर के साथ हस्ताक्षर)

नाम स्पष्ट अक्षरों में

स्थान :

तारीख :

साक्षी :

1.

2.

[फा. सं. के-12052-5(5251)/3/2017-एलएच]

मिहीर कुमार सिंह, संयुक्त सचिव

MINISTRY OF AGRICULTURE AND FARMERS WELFARE
(Department of Animal Husbandry, Dairying and Fisheries)

NOTIFICATION

New Delhi, the 19th May, 2017

G.S.R. 489(E).—In exercise of the powers conferred by sub-section (1) of section 64 read with section 15 and section 21 of the Indian Veterinary Council Act, 1984 (52 of 1984), the Central Government hereby makes the following rules, namely:-

PART I

PRELIMINARY

1. Short title and commencement – (1) These rules may be called the Veterinary Council of India (Procedure for recognition and de-recognition of Veterinary Colleges and Veterinary Qualifications) Rules, 2017.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. Definitions- (1) In these regulations, unless the context otherwise requires, –

(a) **'Act'** means the Indian Veterinary Council Act, 1984 (52 of 1984);

(b) **'Advisory Committee'** means the committee constituted by the Central Government under rule 16 of these rules;

(c) **"Council"** means the Veterinary Council of India established under section 3 of the Act;

(d) **"Form"** means a form annexed to these rules;

(e) **''First Schedule''** means the First Schedule to the Act ;

(f) **"MSVE Regulations"** means the Veterinary Council of India Minimum Standards of Veterinary Education - (Bachelor of Veterinary Science and Animal Husbandry – Degree Course) Regulations, 2016;

(g) **"President"** means the President of the Council;

(h) **"Provisionally recognised veterinary college"** means a veterinary college which is not included in the First Schedule and where admissions of students are allowed by the Central Government by grant and renewal of letter of permission under these rules.

(i) **"Recognised veterinary college"** means a Veterinary College recognised by the Central Government by including it in the First Schedule in the manner specified in the Act and these rules;

(j) **"Recognised veterinary qualification"** means recognised veterinary qualification as defined in clause (e) of section 2 of the Act;

(k) **"Schedule"** means a schedule annexed to these rules;

(l) **"University"** means a university established or incorporated by or under a Central Act, a Provincial Act or a State Act granting veterinary qualification through its constituent or affiliated veterinary college;

(m) **"Veterinary College"** means a college or institution, being either a constituent college of a University or affiliated to a University, and engaged in teaching of Bachelor of Veterinary Science and Animal Husbandry degree course or any other veterinary qualification;

(n) **"Veterinary Institution''** means the institutions as defined in clause (j) of section 2 of the Act ;

(o) **"Veterinary qualification''** means and includes the following degrees and diplomas namely : -

(i) Bachelor of Veterinary Sciences and Animal Husbandry (B.V.Sc and A.H.);

(ii) Bachelor of Science (Vety.) (B.Sc. (Vet.));

(iii) Bachelor of Veterinary Animal Science (B.V.A.Sc.);

(iv) Bachelor of Veterinary Sciences (B.V.Sc);

(v) Graduate in Veterinary Sciences and Animal Husbandry (G.V.Sc. and A.H.);

(vi) Graduate of Bengal Veterinary College (G.B.V.C.);

(vii) Graduate of Bihar Veterinary College (G.B.V.C.);

(viii) Graduate of Bombay Veterinary College (G.B.V.G.);

(ix) Graduate of Madras Veterinary College (G.M.V.G.);

(x) Graduate in Veterinary Sciences (G.V.Sc);

(xi) Any other degree or diploma or any other veterinary qualification included in the First Schedule.

(2) Words and expressions used in these rules and not defined but defined in the Act shall have the same meaning as assigned to them in the Act.

PART II

ELIGIBILITY CRITERIA FOR RECOGNITION OF VETERINARY COLLEGES

3. Recognition of veterinary colleges– No person shall establish a Veterinary College and no Veterinary College shall admit students or increase the intake of students beyond the permitted number, except after obtaining prior permission from the Central Government in accordance with these rules.

4. Eligibility Criteria for recognition of veterinary colleges: –

The following organisations shall be eligible to apply in Form–I for recognition of a veterinary college or veterinary qualification, namely:-

(i) a State Government or Union territory;
(ii) a University;
(iii) an autonomous body promoted by the Central and State Government by or under a statute for the purpose of veterinary education;
(iv) a society registered under the Societies Registration Act, 1860 (21 of 1860) or corresponding Acts in States, if any;
(v) a public religious or charitable trust created and registered under the Public Trusts Act, or any like Act, in force in the State where such trust is domiciled or a waqf registered under the Waqf Act, 1995 (43 of 1995);

5. Qualifying criteria.- The organizations eligible under rule 4 shall qualify to apply for recognition of Veterinary College or a Veterinary qualification, if the following conditions are fulfilled, namely:-

(a) the applicant shall be in control and management of the Veterinary College through which it intends for veterinary qualification or impart veterinary education and training to students leading to the grant of a Veterinary qualification ;

Explanation :- For the purpose of these rules, a person shall be deemed to be in control and management of a Veterinary College when it has the right to appoint or remove the governing body or head of the Veterinary College and is in control of finances or funding of the Veterinary College.

(b) in case the applicant falls in any of the categories other than the categories under clauses (i), (ii) and (iii) of rule 4, it should have imparting of veterinary education and training as one of its main objectives;

(c) the applicant has requisite financial capabilities, as demonstrated by its annual returns and accounts for the last three years, to establish and maintain a Veterinary College and its ancillary facilities, including a teaching veterinary hospital or a Veterinary Clinical Complex and an Instructional Livestock Farm Complex as per the minimum standard of veterinary education regulations;

(d) suitable land of the size, as specified under the minimum standard of veterinary education regulations, to house all structures and encamp all the facilities, as specified under the minimum standard of veterinary education regulations,, is owned and possessed by the applicant or is possessed by the applicant under a lease of thirty years or more from the concerned Government or Government agency and that the said piece of land or the lease, as the case may be, stands duly registered in the name of the applicant.

Provided also that, the Instructional Livestock Farm Complex shall be within a radius of twenty Kilometers of the campus of the Veterinary College.

Provided that all infrastructural facilities specified herein and in the minimum standard of veterinary education regulations, except for the Instructional Livestock Farm Complex, shall be on a single contiguous plot of land.

Provided further that, all such permissions as may be necessary for construction, establishment, maintenance and operation of the Veterinary College, including a veterinary hospital or veterinary clinical complex and instructional livestock farm complex, has been taken from the competent government agency;

(e) the building plan of the Veterinary College shall be prepared by an architect registered with the Council of Architecture constituted under the Architects Act, 1972(20 of 1972), and duly approved by the competent authority as designated by concerned State Government or Union territory;

(f) the applicant owns and manages a veterinary clinical complex or a veterinary hospital or has an arrangement with a State veterinary hospital, and an Instructional Livestock Farm Complex, as laid down in the minimum standard of veterinary education regulations, equipped with all infrastructural facilities as specified therein and the veterinary hospital or Veterinary Clinical Complex, if owned by the applicant, shall be within the campus of the Veterinary College and under full financial and technical control of the applicant;

(g) the applicant has recruited teaching and non-teaching staff required for the first academic year, as specified in MSVE regulations, and prepared a 'manpower programme' for implementation in the Veterinary College upon receipt of the letter of permission from the Central Government and Such manpower programme shall be in connonance with the requirements specified in MSVE regulations and shall provide for department-wise and year wise planning in respect of;

(i) teaching staff (regular),

(ii) technical staff (regular),

(iii) administrative staff (regular),

(iv) ancillary staff,

(v) salary structure,

(vi) recruitment procedure, and

(vii) recruitment calendar

Provided that in addition to recruiting the teaching and non-teaching staff for the first academic year, the applicant, other than an applicant falling within the provisions of sub-clauses (i) and (ii) of rule 4, shall also be required to submit as part of its application in Form-I, the documentary proof of having created a fixed deposit for a minimum duration of two years with a Scheduled bank for an amount equivalent to the estimated cost of salaries and other benefits payable to the teaching staff for the second academic year.

(h) the applicant shall have already constructed and set up, at least for the first and second academic years, the required infrastructural facilities as stipulated in Schedule II hereto and in accordance with the standards specified in the minimum standard of veterinary education regulations ;

(i) the applicant has prepared time bound programmes to provide for additional manpower for the second, third and fourth academic years, and additional infrastructural facilities, including in relation to veterinary clinical complex and Instructional Livestock Farm Complex, for the third and fourth academic years, in accordance with the standards specified in the minimum standard of veterinary education regulations, so as to collectively provide and complete all the necessary facilities within a period of one year from the date of grant of the letter of permission by the Central Government to commence the admissions to the Veterinary College;

(j) the Veterinary College shall not have the words such as, 'Government' or 'Indian' or 'National' or 'All India' or any other names prohibited under the Emblems and Names (Prevention of Improper Use), 1950 as part of its name in any form so as to give an impression that the said Veterinary College belongs to or is managed by the Government or has Government patronage and these restrictions shall not be applicable for those Veterinary Colleges which are established by or under and with the name approved by the State or Central Government.

PART III

APPLICATION FOR RECOGNITION OF A VETERINARY COLLEGE OR VETERINARY QUALIFICATION

6. Application for recognition of a Veterinary College or veterinary qualification.-

(1) The application for recognition of a Veterinary College or veterinary qualification shall be submitted in Form–I by any of the organisations eligible under rule 4, who duly qualify under rule 5 to make such an application, along with the documents as may be specified by these rules, to the Secretary, Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture and Farmers Welfare, Krishi Bhawan, New Delhi – 110011.

(2) The application under sub-rule (1) of rule 6 shall be accompanied by the documents as specified in Form-I and a detailed project report along with proposed fund flow statement for next five years duly certified by a registered Cost Accountant or Charted Accountant and the detailed project report shall include the building programme, educational programme, functional programme, equipment programme and manpower programme.

7. Procedure for evaluation of the application for recognition.- (1) On receipt of an application in the specified Form along with the prescribed fee, the Central Government shall refer such application to the Council for evaluation and recommendations and all applications under these rules shall be processed according to the time-schedule specified in **Schedule I**.

(2) The Council shall scrutinise the applications and any application that is found incomplete in any respect or where the applicant does not meet the eligibility or qualification criteria, shall be returned by the Council to the applicant, with a copy marked to the Central Government, pointing out the deficiencies observed in the application during the scrutiny and giving an opportunity to the applicant to rectify the said deficiencies within the time specified in **Schedule I**.

(3) The applications which are found complete and where the applicant fulfills the criteria under rule 4 and 5, shall be placed before the Executive Committee of the Council constituted under section 12 of the Act, which shall examine the said applications on the basis of the requirements stipulated in these rules and the requirements under the minimum standard of veterinary education regulations.

(4) Upon examination of the application, if the Executive Committee decides that it is a fit case for conducting physical inspection of the Veterinary College, it shall depute such number of inspectors as if deemed necessary for inspection of the Veterinary College in accordance with the provision of section 19 of the Act, the minimum standard of veterinary education regulations and the Veterinary Council of India (Inspectors and Visitors) Regulations, 1991.

(5) Where the Council forms an opinion that the application shall be rejected without conducting a physical inspection, it shall reject the application giving sufficient reasons and intimate the applicant of such rejection with a copy to the Central Government.

(6) After the inspection is completed, the inspectors shall prepare a report on the adequacy of the standards of veterinary education including infrastructure, staff, equipment, accommodation, training and other facilities available at the Veterinary College and shall submit the same to the Executive Committee of the Council.

(7) The Executive Committee, after considering the report mentioned in sub-rule (6), shall send a copy of the said report, with such remarks as may be necessary, to the applicant seeking comments on the contents of the said report and a copy of the inspection report shall also be forwarded by the Council to the concerned University.

(8) After receipt of the comments from the Veterinary College, the Council shall forward the inspectors' report mentioned in sub-rule (6), along with the Executive Committee's remarks and the comments received from the applicant to the Central Government with a recommendation whether to issue a Letter of Intent to the applicant or not.

(9) Where the Council recommends issuance of the Letter of Intent to the Central Government, it shall along with its recommendation also specify such additional requirements that need to be fulfilled by the applicant or such deficiencies that need to be cured, before a Letter of Permission can be granted in favour of the applicant by the Central Government.

(10) Where the Council recommends to the Central Government against the issue of Letter of Intent to the applicant, it shall submit its reasons for such recommendation in writing and the Central Government may, decide to issue a Letter of Intent to the applicant despite the recommendation to the contrary received from the Council.

(11) The Letter of Intent issued by the Central Government shall, *inter alia*, contain details of such additional requirements or deficiencies as communicated to it by the Council in addition to any other conditions or modifications, including the submission of bank guarantee by applicants not falling under clauses (i) and (ii) of rule 4, as required under these rules, as the Central Government may deem fit to impose for grant of the Letter of Permission :

Provided that the applicants falling under clauses (i) and (ii) of rule 4 shall be exempted from submission of such bank guarantee subject to that they submit an undertaking from the concerned University and the Chief Secretary of the concerned State or the equivalent official of the concerned Union territory, as the case may be, to ensure compliance of minimum standard of veterinary education regulations in the Veterinary College at all times and a copy of the Letter of Intent shall also be forwarded by the Central Government to the Council and the concerned University.

(12) The applicant shall be required to convey its acceptance of the Letter of Intent, in writing, to the Central Government accompanied with documentary evidence of the applicant having satisfied the conditions stipulated in the Letter of Intent or an undertaking, in the form of an affidavit signed by a member of the governing body of the applicant, as the case may be, to meet such conditions and the acceptance received from the applicant shall be forwarded by the Central Government to the Council for its consideration for the purpose of making appropriate recommendation to the Central Government regarding the issuance of Letter of Permission to the applicant.

(13) Subject to the applicant meeting the conditions laid down in the Letter of Intent or its undertaking in writing to meet the conditions and comply with the modifications and other additional requirements contained in the Letter of Intent, and submission of the bank guarantee as required (if applicable), the Council shall send its recommendation in writing to the Central Government recommending the grant or otherwise of the Letter of Permission to the applicant and such recommendation shall also include the number of seats in the Veterinary College proposed to be established by the applicant may be allowed to have in its first two academic years.

(14) On recommendation of the Council, the Central Government may issue a Letter of Permission to the applicant permitting the applicant to admit students to the Veterinary College in accordance with these rules and a copy of the Letter of Permission shall also be forward by the Central Government to the Council and the concerned University.

(15) Where the Council recommends against the grant of the Letter of Permission to the applicant, it shall convey its reasons for such recommendation to the Central Government in writing.

(16) If the Central Government decides not to issue the Letter of Permission, its decision along with the recommendation received from the Council shall be conveyed to the applicant, with a copy to the Council and the concerned University, and the bank guarantee furnished by the applicant at the time of making such

application shall be released in favour of the applicant. Provided, the fee paid by the applicant along with the application shall not be refunded.

8. Letter of Permission.- (1) The Letter of Permission shall be granted for the first two academic years in the first instance and the Veterinary College shall only be allowed to admit students for the first and second academic years.

(2) The grant of the Letter of Permission shall be subject to the applicant satisfying requirements stipulated in the Letter of Intent and, in case of applicants not falling under clauses (i) and (ii) of rule 4, furnishing a bank guarantee for an amount of Rs. 5,00,00,000/- (Rupees Five Crores only) in favour of "Veterinary Council of India" from a Scheduled bank situated in Delhi and which shall initially be valid for a period of five years and thereafter, the said bank guarantee shall be extended from year to year by the applicant and shall at no point of time be allowed to lapse.

(3) In case of applicants not falling under clauses (i) and (ii) of rule 4, the grant of the Letter of Permission shall also be subject to the applicant furnishing adequate documentary proof of having created a fixed deposit for a minimum duration of two years with a Scheduled bank equal to the amount of estimated annual salaries payable to the faculty proposed to be employed by the Veterinary College during its second academic year.

9. Renewal of letter of permission -

(1) The permission granted by the Letter of Permission shall be renewable for the third and fourth academic years subject to verification of the progress of the targets as submitted by the applicant as part of its application in Form-I as well as any targets specified in the Letter of Intent issued by the Central Government to the applicant.

(2) All applications under these rules for renewal of the Letter of Permission shall be processed according to the time-schedule specified in **Schedule III**.

(3) The applicant shall apply to the Secretary, Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture and Farmers Welfare, Krishi Bhawan, New Delhi – 110011, for renewal of the Letter of Permission at least one year prior to the scheduled commencement of its third academic year in Form - X.

(4) Prior to making the application in Form-X, the applicant shall have to,

(i) comply all the targets as projected by it in the detailed project report submitted along with Form-I as well as the targets specified in the Letter of Intent;

(ii) recruit teaching and non-teaching staff required for the third academic year, as specified in minimum standard of veterinary education regulations and prepare a 'manpower recruitment programme' for implementation in the fourth academic year and in case of applicants not falling under clauses (i) and (ii) of rule 4, in addition to recruiting the teaching and non-teaching staff for the third academic year, the applicant shall also be required to submit as part of its application in Form-X, documentary proof of having created a fixed deposit for a minimum duration of two years with a Scheduled bank for an amount equivalent to the estimated cost of salaries and other benefits payable to the teaching staff for the fourth academic year.

(5) Upon receipt of the renewal application, the Central Government shall forward the same to the Council and the Council shall, after conducting scrutiny of the application, depute such number of inspectors as deemed necessary for inspection of the Veterinary College in accordance with the provision of section 19 of the Act, the minimum standard of veterinary education regulations and the Veterinary Council of India (Inspectors and Visitors) Regulations, 1991.

(6) The inspection of Veterinary College shall be conducted by the inspectors in accordance with the procedure specified in the Veterinary Council of India (Inspectors and Visitors) Regulations, 1991 and after the inspection is completed, the inspectors shall prepare an inspection report on the adequacy of the standards of veterinary education including infrastructure, staff, equipment, accommodation, training and other

facilities available at the Veterinary College and shall submit the same to the Executive Committee of the Council.

(7) The Executive Committee, after considering the report mentioned in sub-rule (6), shall send a copy of the said report, with such remarks as may be necessary, to the applicant seeking comments on the contents of the said report and copy of such inspection report shall also be forwarded by the Council to the concerned University.

(8) After receipt of the comments from the applicant, the Council shall forward the inspectors' report specified in sub-rule (6), along with the Executive Committee's remarks and the comments received from the Veterinary College, to the Central Government with a recommendation whether to renew the Letter of Permission granted to the Veterinary College or not.

(9) Where the Council recommends against the renewal of the permission to the applicant, it shall convey its reasons for such recommendation to the Central Government in writing.

(10) If the Central Government decides not to renew the permission, its decision along with the recommendation received from the Council shall be conveyed to the applicant, with copies to the Council and the concerned University.

(11) If the Council recommends the renewal of the Letter of Permission to the applicant, the Central Government may renew the permission in favour of the applicant permitting the applicant to admit students to the Veterinary College for the third and fourth academic years and a copy of such renewal of Letter of Permission shall also be forwarded by the Central Government to the Council and concerned University

(12) In the event of non-renewal of the Letter of Permission to a Veterinary College in respect of any succeeding academic year, the students of the said Veterinary College shall be shifted to a recognised Veterinary College as provided in these rules hereinafter.

(13) If the application for renewal of permission of a Veterinary College is rejected, the applicant may apply again after removing the deficiencies which had caused the rejection of application for renewal and in case the Veterinary College is granted permission to admit students at a later stage, the case shall be treated as a fresh case and only such students as are admitted after the grant of permission or renewal by the Central Government shall be considered for the award of a Recognised Veterinary Qualification and the applicant shall have to procure an undertaking to this effect from the University to which it is affiliated.

10. Grant of recognition to a Veterinary College or Veterinary Qualification by inclusion in the First Schedule.-

(1) A provisionally recognized Veterinary College shall be required to apply to the Secretary, Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture and Farmers Welfare, Krishi Bhawan, New Delhi – 110011 in the specified **Form – XI** at least one year prior to the scheduled commencement of its fourth academic year for its inclusion in the First Schedule **("Application for final recognition")**.

(2) The application for final recognition shall be accompanied with a Project Report showing that the said Veterinary College has all the necessary facilities, manpower and equipments as per the standards specified in the minimum standard of veterinary education regulations, and such other documents as may be specified in Form-XI and the application for final recognition shall be processed in accordance with **Schedule-IV**.

(3) The procedure specified in rule 9 for scrutiny and examination of the renewal application, deputation of inspectors for inspecting the Veterinary College, inspection of the veterinary college, consideration of the inspection report by the Council, sending of the inspection report to the concerned Veterinary College and the University, receipt of comments from the Veterinary College on the inspection report, shall apply *mutatis mutandis* to the application for final recognition made in rule 10.

(4) After consideration of the comments made by the Veterinary College on the inspection report, if any, the Council shall forward the inspection report, the comments received from the Veterinary College on the inspection report and its recommendation under sub-section (2) of section 15 of the Act whether to include the Veterinary College or the Veterinary Qualification in the First Schedule or not, to the Central Government and where the Council makes a recommendation against inclusion of the Veterinary College or the Veterinary Qualification in the First Schedule, it shall state its reasons for such recommendation in writing.

(5) Based on the recommendation received from the Council, the Central Government may include the name of the Veterinary College or the Veterinary Qualification both in the First Schedule and shall issue a certificate of recognition to the Veterinary College and a copy of such certificate of recognition shall also be forwarded by the Central Government to the Council and the concerned University.

(6) If the Central Government is of the view that the recognition under sub-section (2) of section 15 of the Act to any Veterinary Qualification shall not be granted, the reasons for such refusal shall be recorded and communicated to the applicant or the Veterinary College in writing, with copies to the Council and the concerned University.

(7) If the Central Government decides to not grant recognition to a Veterinary College, the students of the said Veterinary College shall be shifted to a recognised Veterinary College as provided in these rules hereinafter.

11. Phase wise requirements.- The applicant seeking recognition under these rules shall create such minimum physical facilities and appoint such minimum manpower in the Veterinary College in different phases as specified in **Schedule II**.

PART IV

APPLICATION FOR INCREASING THE ADMISSION CAPACITY IN THE RECOGNISED VETERINARY COLLEGE

12. Application for increasing the admission capacity in the recognised Veterinary College.- (1) An application for expansion of a recognised Veterinary College or Veterinary Institution or increasing the number of intake of students in the recognised Veterinary College or Veterinary Institution or both shall be submitted in **Form–XII**, along with such fee and other documents as may be specified by these rules, to the Secretary, Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture and Farmers Welfare, Krishi Bhawan, New Delhi – 11001.

(2) The application under sub rule (1) shall be accompanied by the documents as specified in Form-IA along with, where applicable, a detailed project report which shall include the building programme, educational programme, functional programme, equipment programme and manpower programme that the applicant intends to implement to provide necessary facilities for the increased number of students.

13. Qualifying criteria for submission of application for increase in admission capacity of a recognised Veterinary College.- A recognised Veterinary College shall qualify to apply for increasing its admission capacity if the following conditions are fulfilled, namely: -

(a) the applicant has obtained an essentiality certificate in the specified format from the respective State Government or the Union territory administration, as the case may be, regarding feasibility and desirability of increasing the admission capacity in the existing recognized Veterinary College to the proposed capacity;

(b) the applicant has obtained a "No Objection Certificate" in the specified format from the respective State Government or Union territory Administration for the increase in the admission capacity of the concerned Veterinary College to the proposed capacity;

(c) the applicant has obtained a Letter of Consent from the affiliating University for the increase in the admission capacity of the concerned Veterinary College to the proposed capacity;

(d) the applicant has the necessary financial capabilities, as demonstrated by the annual returns and accounts for the last three years, to maintain the Veterinary College with the increased admission capacity;

(e) that suitable land of the size, as specified under the minimum standards of veterinary education regulations, to house all structures and encamp all necessary facilities with respect to the proposed increased student intake capacity, as specified under the minimum standards of veterinary education regulations, is owned and possessed by the applicant or is possessed by the applicant under a lease of thirty years or more from the concerned Government or Government agency and that the said piece of land or the lease, as the case may be, stands duly registered in the name of the applicant and all infrastructural facilities, except for the instructional livestock farm complex, shall be on a single contiguous plot of land.

Provided that, all such permissions as may be necessary for construction, establishment, maintenance and operation of the additional infrastructure at the Veterinary College, including a veterinary hospital or Veterinary Clinical Complex and Instructional Livestock Farm Complex, has been taken from the competent government agency;

(f) the building plan of the proposed additional infrastructural facilities to be constructed by the applicant in the Veterinary College to meet the requirements with respect to the proposed increased admission capacity as stipulated in the minimum standards of veterinary education regulations, shall have been prepared by an architect registered with the Council of Architecture constituted under the Architects Act, 1972(20 of 1972), and duly approved by the competent authority as designated by concerned State Government or Union territory.

14. Procedure for evaluation of application for increase in admission capacity of a recognised Veterinary College or a Veterinary Institution offering a recognised Veterinary Qualification.-

(1) On receipt of an application for increase in admission capacity in the specified Form along with the specified fee, the Central Government shall refer such application to the Council for evaluation and recommendations within a period of fifteen days from the date of receipt of application.

(2) The procedure specified in rule 9 for scrutiny and examination of the renewal of the letter of permission application, deputation of inspectors for inspecting the Veterinary College, inspection of the Veterinary College, consideration of the inspection report by the Council, sending of the inspection report to the concerned Veterinary College and the University, receipt of comments from the Veterinary College on the inspection report, shall apply *mutatis mutandis* to the application for increasing the admission capacity made under rule 12.

(3) After consideration of the comments made by the Veterinary College on the inspection report, if any, the Council shall forward the inspection report, the comments received from the Veterinary College on the inspection report and its recommendation under sub-section (2) of section 15 of the Act whether to permit the increase the seats of the admission capacity of the applicant Veterinary College, to the Central Government and where the Council makes a recommendation against grant of the permission, it shall state its reasons for such recommendation in writing.

(4) Based on the recommendation received from the Council, the Central Government may permit the increase in admission capacity of the recognised Veterinary College by issuing a certificate of permission to the recognised Veterinary College with copies to the Council and the concerned University.

(5) If the Central Government is of the view that the permission to increase the admission capacity shall not be granted, the reasons for such refusal shall be recorded and communicated to the applicant or the recognised Veterinary College in writing, with copies to the Council and the concerned University.

15. **Fee-** The applications in Form-I, Form – X, Form - XI and Form – XII shall be accompanied with a fee of rupees one lakh fifty thousand only and the fee shall be deposited by way of a Demand Draft or Pay Order in the name of Veterinary Council of India, payable at New Delhi and applicants falling under clauses (i) and (ii) of rule 4 shall be exempted from such application fee.

PART V

ADVISORY COMMITTEE

16. **Advisory Committee.- (1)** Notwithstanding anything contained in these rules or any other law for the time being in force, if the Council fails to make any recommendation, within the specified time as required in these rules, to the Central Government for the purpose of recognition of Veterinary Qualification or Veterinary College for any academic year, including the recommendation for inclusion of the Veterinary College or the Veterinary Qualification in the First Schedule, or in respect of an application for increasing the admission capacity of a recognised Veterinary College, the Central Government may constitute an Advisory Committee of experts and delegate the duties of the Council in respect of inspection of Veterinary Colleges and recommendations to the Central Government under these rules to such Advisory Committee.

(2) The Advisory Committee referred to in sub-rule (1) shall comprise of the following members, namely:-

(i) One member from Indian Council of Agricultural Research to be nominated by the Director General of the Indian Council of Agricultural Research;

(ii) Vice Chancellors of two Universities which, or Veterinary Colleges affiliated to which, are included in the First Schedule, to be nominated by the Central Government;

(iii) Dean or Associate Dean of a recognized Veterinary College to be nominated by the Central Government;

(iv) Principal Secretary or Secretary, Department of Animal Husbandry, of the concerned State or his nominee who shall not be an officer below the rank of Director or Commissioner or Director General.

(3) For the purpose of these rules, the Advisory Committee shall have all the powers vested in the Council to enable it to perform its functions, including the power to, if it deems necessary, appoint such number of veterinary inspectors as it may deem fit to inspect the concerned Veterinary College for the purpose of making the required recommendation to the Central Government.

(4) The veterinary inspectors appointed by the Advisory Committee shall have all the rights and duties of the veterinary inspectors appointed by the Council under section 19 of this Act and the Veterinary Council of India (Inspectors and Visitors) Regulations, 1991.

(5) If in a particular case, an inspection has already been conducted by the Council and report thereof submitted to the Central Government, the Advisory Committee may instead of conducting a fresh inspection, make its recommendation to the Central Government on the basis of the existing inspection report and if the Advisory Committee deems necessary, it may summon the concerned veterinary inspectors to provide such explanations and clarifications as may be required for the purpose of making the recommendation to the Central Government.

(6) The recommendation of such Advisory Committee shall have the same effect as any recommendation of the Council to the Central Government.

(7) The Advisory Committee shall be dissolved after its recommendation specified under sub-rule (1).

(8) The terms and conditions of services of such members of the Advisory Committee constituted by the Central Government shall be as per the prevailing General Financial Rules of the Government of India.

PART VI

INSPECTION

17. Inspection of Veterinary Colleges or Veterinary Institutions already included in the First Schedule.- (1) The Veterinary Institutions or Veterinary Colleges which are already included or Veterinary Qualifications which are already granted in the First schedule,, shall be inspected by the Council from time to time, in accordance with the provisions of sections 19 or 20 of the Act and the Veterinary Council of India (Inspectors and Visitors) Regulations, 1991, to oversee the compliance of these rules and minimum standard of veterinary education regulations.

(2) In the event of the inspection being conducted by Inspectors, the inspection report shall be placed before the Executive Committee of the Council, while in the event of inspection by Visitors, the inspection report shall be submitted to the President of the Council in confidence.

(3) If upon considering the inspection report, the Council comes to a conclusion that the circumstances as laid down in clauses (a) of sub-sections (1) and (2) of section 21 of the Act exist in respect of the Veterinary Institution or Veterinary College inspected by the Council, the Council shall make a representation to that effect to the Central Government.

(4) If upon consideration of such representation, the Central Government concludes it to be a fit case, it may, within thirty days of the receipt of the representation from the Council, send the said representation to the concerned State Government through the Secretary, Department of Animal Husbandry of the State in which the Veterinary College or Veterinary Institution is situated for further action.

(5) The concerned State Government shall, within thirty days of the receipt of the representation from the Central Government, forward the said representation along with such remarks as it may choose to make to the concerned Veterinary College or Veterinary Institution, requiring the concerned Veterinary College or Veterinary Institution to submit its explanation to the State Government within thirty days of the receipt of the said representation from the State Government.

(6) Within fifteen days of the receipt of the explanation or, where no explanation is submitted within the period specified in sub-rule (5) hereinabove, then on expiry of that period, the State Government shall make its recommendation to the Central Government regarding the de-recognition of the concerned Veterinary College or Veterinary Institution.

(7) Within fifteen days of the receipt of the recommendation from the State Government, the Central Government may, if it deems fit, constitute an inquiry committee to make such inquiries into the standards of the concerned Veterinary College or Veterinary Institution as may be necessary and of the inquiry committee constituted under this rule shall submit its report within twenty one days of its constitution.

(8) Subject to the report submitted by the inquiry committee, the Central Government may, by notification in the Official Gazette, direct that an entry shall be made in the appropriate Schedule against the concerned Veterinary College or Veterinary Institution declaring that a Veterinary Qualification granted to students of the concerned Veterinary College or Veterinary Institution shall be a recognised Veterinary Qualification only when granted before a specified date:

Provided further that before issuing such notification the Central Government may consult the Indian Council of Agricultural Research.

Provided that the Central Government may issue such notification without constituting any inquiry committee if in its opinion the recommendation received from the concerned State Government is adequate for the purpose.

(9) The copies of the notification issued by the Central Government under sub-rule (8) shall be sent to the Council, the concerned State Government, the concerned Veterinary College or Veterinary Institution and the concerned University within three days of the publication of the notification in the Official Gazette.

PART VII

RESTORATION OF RECOGNITION OF DE-RECOGNISED VETERINARY COLLEGE OR VETERINARY INSTITUTION

18. Restoration of recognition of de-recognised Veterinary College or Veterinary Institution: - A de-recognised Veterinary Institution or Veterinary College, shall not be permitted to admit students for any of its academic years until such time that its recognition or the recognition of the Veterinary Qualification granted by it is restored.

(1) An application for restoration of recognition of a de-recognised Veterinary Institution or Veterinary College may be made to the Secretary, Department of Animal Husbandry, Dairies and Fisheries, Ministry of Agriculture and Farmers Welfare, Krishi Bhawan, New Delhi - 110001 by furnishing a commitment in the form of an affidavit along with a detailed report, and such documents as may be necessary, for the removal of the deficiencies which had formed the basis of its de-recognition and the affidavit mentioned above shall be signed by a member of the governing body of the Veterinary Institution or Veterinary College duly authorised in this regard:

(2) On receipt of application from the de-recognised Veterinary Institution or Veterinary College, the Central Government shall follow the similar procedure as applicable to grant of recognition to a Veterinary College by its inclusion in the First Schedule as specified in rule 10.

Provided that the concerned State Government or University in case of Veterinary Institutions or Veterinary Colleges established by a State Government or a University, the said application for restoration of recognition shall be made through the concerned State Government or University, as the case may be, and the detailed report establishing the removal of deficiencies to be submitted along the application shall be duly authenticated, as the case may be.

19. Shifting of students. - (1) If a de-recognised Veterinary College fails to restore its recognition at least three months before the commencement of the next immediate academic year, the students already admitted therein shall be assessed by the University by conducting appropriate tests and based on the results of such assessment tests, the students may be shifted to another recognised Veterinary College or Veterinary Institution granting a recognised Veterinary Qualification affiliated to the same University by the Council, with the approval of Central Government:

Provided that if the University has no other Veterinary Colleges or Veterinary Institution affiliated to it, the students of the de-recognised Veterinary College shall be shifted by the Council to a recognised Veterinary College or Veterinary Institution granting a recognised Veterinary Qualification within the same State within which the de-recognised Veterinary College is situated:

Provided that further that if there is no other Veterinary College or Veterinary Institution within the said State, the Council shall be empowered to shift the students to any other recognised Veterinary College or Veterinary Institution granting a recognised Veterinary Qualification in the country:

Provided also that no Veterinary Institution or Veterinary College shall be under an obligation to admit any more students than fifteen percent of its sanctioned number of seats and accordingly the number of seats available for admissions in the consecutive academic year in such Veterinary Institution or Veterinary College shall be reduced by such number of students as admitted by it under this rule:

(2) If the recognition of a de-recognised Veterinary College is not restored till such time that the students admitted to it need to be shifted to a recognised Veterinary College or Veterinary Institution granting a recognised Veterinary qualification, the bank guarantee submitted by it shall be enchased by the Council with prior permission of the Central Government and the cost of transferring the students under these rules shall be met with the amount realised from encashment of the said bank guarantee under the supervision of the Central Government.

(3) The provisions of sub-rules (1) and (2) regarding the shifting of students shall also apply to students admitted to a provisionally recognised Veterinary College, Letter of Permission granted to which is not renewed or which is refused final recognition by the Central Government.

[F. No. K-12052-5(5251)/3/2017-LH]

MIHIR KUMAR SINGH, Jt. Secy.

SCHEDULE – I

Schedule for receipt of applications in Form-I

Sr. No.	Stage of processing	Last Date
1.	Receipt of applications by the Central Government.	By 31st August
2.	Receipt of applications by the Veterinary Council of India from Central Govenment.	By 15th September
3.	Scrutiny of the applications by the Veterinary Council of India and return of applications found defective to the applicant with a copy to the Central Government.	By 1st October
4.	Re-submission of the application after removal of defects by the applicant	By 15th October
5.	Recommendations of Veterinary Council of India to Central Government for issue of Letter of Intent.	By 15th December
6.	Issue of Letter of Intent by the Central Government.	By 1st January
7.	Receipt of reply from the applicant to the Central Government requesting for Letter of permission.	By 30th January
8.	Receipt of applicant's reply to the Letter of Intent by the Veterinary Council of India from Central Government.	By 15th February
9.	Recommendation of Veterinary Council of India to Central Government for issue of Letter of Permission.	By 15th March
10.	Issue of Letter of Permission by the Central Government.	By 31st March

SCHEDULE - II

1. **Minimum requirements prior to submission of the application in Form–I by the applicant for recognition of Veterinary College:-**

(a) The applicant should have not less than 15 acres of land at its disposal, whether by way of ownership or lease from Government or Government agency of 30 years or more, earmarked for the Veterinary College of which 5 acres minimum should be earmarked for fodder production.

(b) The Veterinary College shall have an Administrative Block with the following facilities, namely:-

(i) Dean or Principal's office room with attached toilet room and retiring room,
(ii) Personal Staff room,
(iii) Committee room,
(iv) Visitors' room,
(v) Office rooms accommodating office staff of Academic, Accounts and Establishment Sections,
(vi) Record room,
(vii) Central store room,
(viii) Toilet facilities for visitors and office staff,
(ix) Typing, Duplicating and Photocopying facilities

(c) The Veterinary College shall have recruited the following manpower, namely:-

Dean or Principal	1
Personal Assistant or Personal Secretary to the Dean or Principal	1
Academic Assistant	1
Accountant	1
Establishment Assistant	1
Computer Operator	1
Store keeper	1
Assistant Librarian	1
Library Attendant	2
Multi-tasking staff	1
Drivers	2
Electrician	1
Plumber	1
Gardener	1
Peon or Messengers	2
Sweepers	4

(d) In addition to the above, the Veterinary College shall have the following common facilities, namely -

(i) College Library equipped with adequate books, journals and periodicals; reprographic and duplication facilities; internet connectivity and reading rooms with adequate seating accommodation;
(ii) An auditorium with minimum seating capacity of 300;
(iii) Canteen;
(iv) A Conference hall with multimedia projections system with minimum seating capacity of 100;
(v) Two lecture halls fitted with audio-visual projection system with minimum seating capacity of 100 each;
(vi) Distillation or Deionizer plants;
(vii) Drinking water facility;
(viii) Play grounds with games and sports facilities including indoor games facilities;
(ix) Hostels for boys and girls with common room, mess etc.;

(x) Transport facilities including bus, minibus, staff car, ambulatory van and mobile diagnostic unit;
(xi) Central Computer lab;
(xii) Photography Unit with all facilities

(e) The following departments shall have been established in the Veterinary College, and adequate teaching faculty shall have been recruited, in accordance with such requirements relating to buildings, manpower and equipments as stipulated in MSVE Regulations:

(i) Veterinary Anatomy,

(ii) Veterinary Physiology and Biochemistry,

(iii) Livestock Production Management,

(iv) Veterinary Clinical Complex (VCC),

(v) Instructional Livestock Farm Complex (LFC),

2. Minimum requirements prior to submission of the application in Form-X for renewal of Letter of Permission:

The following departments shall have been established in the Veterinary College, and adequate teaching faculty shall have been recruited, in accordance with such requirements relating to buildings, manpower and equipments as stipulated in MSVE Regulations before submission of the application for Renewal of Letter of Permission to the Central Government:

(a) Veterinary Pathology,
(b) Veterinary Microbiology,
(c) Animal Genetics and Breeding,
(d) Animal Nutrition.

3. Minimum requirements prior to submission of application in From-XI for Final Recognition of the Veterinary College

The following departments shall have been established in the Veterinary College, and adequate teaching faculty shall have been recruited, in accordance with such requirements relating to manpower and equipments as stipulated in MSVE Regulations before submission of the application for Final Recognition of the Veterinary College to the Central Government:

(a) Veterinary Pharmacology and Toxicology,
(b) Veterinary Parasitology,
(c) Veterinary Public Health and Epidemiology,
(d) Livestock Products Technology,
(e) Veterinary and Animal Husbandry Extension Education.

4. Minimum requirements prior to the commencement of the fourth academic year:

The following Departments shall be established in the Veterinary College, and adequate teaching faculty shall have been recruited, at least six months before the start of the annual examinations of the third academic year in accordance with such requirements relating to manpower and equipments as stipulated in MSVE Regulations:

(a) Veterinary Surgery and Radiology,
(b) Veterinary Medicine,
(c) Veterinary Gynaecology and Obstetrics.

SCHEDULE – III

Schedule for receipt of applications in Form-X

Sr. No.	Stage of processing	Last Date
1.	Receipt of applications by the Central Government.	By 31st August
2.	Receipt of applications by the Veterinary Council of India from Central Govt.	By 15th September
3.	Scrutiny of the applications by the Veterinary Council of India and return of applications found defective to the applicant with a copy to the Central Government	By 15th October
4.	Re-submission of the application after removal of defects by the applicant	By 30th October
5.	Recommendations of Veterinary Council of India to Central Government for renewal of Letter of Permission	By 15th January
6.	Issue of Letter of Renewal of Letter of Permission by the Central Government.	By 1st February

SCHEDULE – IV

Schedule for receipt of applications in Form-XI

Sr. No.	Stage of processing	Last Date
1.	Receipt of applications by the Central Government.	By 31st August
2.	Receipt of applications by the Veterinary Council of India from Central Govt.	By 15th September
3.	Scrutiny of the applications by the Veterinary Council of India and return of applications found defective to the applicant with a copy to the Central Government	By 15th October
4.	Re-submission of the application after removal of defects by the applicant	By 30th October
5.	Recommendations of Veterinary Council of India to Central Government for grant of Final Recognition to the Applicant	By 15th January
6.	Issue of Letter of Recognition by the Central Government to the Applicant.	By 1st February

FORM– I

FORMAT OF APPLICATION FOR RECOGNITION BY THE CENTRAL GOVERNMENT OF VETERINARY QUALIFICATION OR A VETERINARY COLLEGE

1.	**NAME OF THE APPLICANT**	
2.	**ADDRESS OF REGISTERED OFFICE OF THE APPLICANT** (No., Street, City, Pin Code, Telephone, Telex, Telefax)	
3.	**CATEGORY OF THE APPLICANT** (State Government/ Union territory/ University/ Statutory Autonomous Body/ Society/ Trust/ Waqf)	
4.	**Date and Registration No.** (in case of a Society/Trust/Waqf) or of **Recognition** (in case of a University)	
5.	**NAME AND ADDRESS OF THE VETERINARY COLLEGE**	
6.	**NAME OF THE VETERINARY QUALIFICATION**	
7.	**NAME OF AFFILIATING UNIVERSITY**	
8.	**BASIC INFASTRUCTURAL FACILITIES AVAILABLE FOR THE VETERINARY COLLEGE AND THE ATTACHED VCC AND ILFC (Phase Wise Requirements are Described in Schecule II)**	
9.	**MANAGERIAL CAPABILITY:-** Composition of the applicant, particulars of governing body of the applicant, particulars of the head or project director of the Veterinary College along with their qualification and experience in the field of veterinary education	
10.	**FINANCIAL CAPABILITY** Balance Sheet/ Annual Returns for the last 3 years to be provided if the applicant is a Society or Trust or Waqf.	

11. JUSTIFICATION FOR ESTABLISHMENT

(a) Needs and availability of trained veterinary manpower in the concerned State or Union Territory;

(b) Number of livestock including number of veterinary hospitals or dispensaries in the catchment area;

(c) Reason behind establishment of such Veterinary College by the said applicant

12. EDUCATIONAL PROGRAMME

(a) Proposed annual intake of students,
(b) Admission criteria to be adopted,
(c) Method of admission,
(d) Reservation or preferential allocation of seats,
(e) Department wise and year wise curriculum of studies, both theory and practical.

13. FUNCTIONAL PROGRAMME

(a) Department wise and service wise functional requirements,

(b) Area distribution and room wise seating capability,

(c) Facilities for lectures and seminars.

14. EQUIPMENT PROGRAMME

Department and room wise list of Equipments complete with year wise schedule of quantities and specifications of all equipments required for imparting veterinary education as per minimum standard of veterinary education regulations.

15. MAN POWER PROGRAMME

Department wise and year wise list of recruited or appointed (for the first academic year) and proposed to be recruited or appointed (for the second, third and fourth academic years):
(a) Teaching staff (regular),
(b) Technical staff (regular),
(c) Administrative staff (regular),
(d) Ancillary staff,
(e) Salary structure,
(f) Recruitment procedure,
(g) Recruitment calendar.

16. BUILDING PROGRAMME

Building wise built up area of:
(a) Veterinary college (departments, lecture theatre examination hall, museum etc.),
(b) Veterinary Clinical Complex,
(c) Instructional Livestock Farm Complex,
(d) Faculty and staff housing,
(e) Students hostels,
(f) Administrative office,
(g) Library,
(h) Auditorium,
(i) Animal house,
(j) Cultural and recreational centre,
(k) Sports complex,
(l) Post-mortem section with incineration facility and waste management system,
(m) Cadaver and animal experimentation facility,
(n) Others (state name of the facility).

17. PLANNING AND LAYOUT

(a) Master plan of the veterinary college, VCC and ILFC,

(b) Layout plans, sections,

(c) Elevations and floor wise area calculations of the Veterinary colleges and ancillary buildings.

18. PHASING AND SCHEDULING

Month wise schedule of activities for the third and fourth academic years indicating –
(a) Commencement and completion of building design,
(b) Local body approvals,
(c) Civil construction,
(d) Provision of engineering services and equipment,

(e) Requirement of staff,

(f) Phasing of commissioning.

19. PROJECT COST

(a) Capital cost of land,
(b) Buildings,
(c) Plant and machinery,
(d) Equipments,
(e) Furniture and fixtures,
(f) Preliminary and preoperative expenses.

20. MEANS OF FINANCING THE PROJECT

(a) Contribution of the applicant,
(b) Grants,
(c) Donations ,
(d) Equity,
(e) Term loans,
(f) Other sources (if any).

21. REVENUE ASSUMPTIONS

(a) Fee structure ,
(b) Estimated annual revenue from other sources for the next five years,

(c) Projected total revenue statements for the next five years.

22. EXPENDITURE ASSUMPTIONS

(a) Estimated operating expenses for the next five years,

(b) Estimated capital expenditure for the next five years,

23. OPERATING RESULTS

(a) Income statement for the last 3 years
(b) Cash flow statement for the last 3 years
(c) Annual returns for the last 3 years

NOTE:- For Items14 to 16 a comparative statement showing the relevant Veterinary Council of India norms vis-à-vis infrastructure or faculty available or proposed to be made available should be annexed.

Name and Signature of Applicant

LIST OF ENCLOSURES:

1. Certified copies of complete constitutional documents of the applicant.
2. Certified copy of Certificate of registration or incorporation of the applicant.
3. Certified copy of the resolution or other authorisation document by which the applicant has been authorised to establish a Veterinary College and to make the application under these Rules to seek recognition.
4. No Objection Certificate from the State Government or the Union Territory Government or Administration, as the case may be **(Form-II)**.
5. Essentiality Certificate issued by the respective State Government or Union territory Government or Administration, as the case may be **(Form-III)**.
6. Certified copy of the letter of consent of affiliation issued by a University **(Form IV)** or the letter/ certificate of affiliation or temporary affiliation issued by a University.

7. Report from the concerned University verifying the physical and other facilities available at the Veterinary College **(Form-V)**.
8. A Detailed Project Report including the building programme, educational programme, functional programme, equipment programme and man power programme.
9. Certified copy of the title deeds/ sale deeds/ gift deeds/ any other document in respect of the total available land as proof of its ownership issued by the relevant competent authority.
10. Certified copy of the lease deed of the land, where the land is leased issued by the relevant competent authority.
11. Certified copy of zoning plans of the available sites indicating their land use or land use certificates and land conversion certificates where applicable issued by the relevant competent authority.
12. Certified copies of land records containing map of the area showing the land survey no. and location of the site of Veterinary College and ILFC as well as its access from the nearby and adjoining roads issued by the relevant competent authority.
13. Certified copies of the land records showing the contiguity of the land.
14. An affidavit on a non-judicial stamp paper of Rs. 100 by a member of the governing body of the applicant deposing that the applicant has clear title to the land accompanied with verification or due diligence report by a practising advocate.
15. Certified copy of the Site Plan and building plan of the Veterinary College prepared by an architect registered with the Council for Architecture (COA) and duly approved by the competent Plan Sanctioning Authority of the concerned State or Union Territory Administration.
16. Plan of built up structure available exclusively for the Veterinary College with a table clearly mentioning all rooms, with carpet area of each room (in sq. ft), as specified in MSVE Regulations, certified by an architect registered with the Council of Architecture.
17. Copies of floor plans, sections and elevations of all existing academic buildings including area details certified by an architect registered with the Council of Architecture.
18. An affidavit about building construction with respect to approved building plan, carpet and built up area (sqft.) and number of rooms, LFC, VCC and other infrastructure with respect to Veterinary Council of India norms, on a non-judicial stamp paper of Rs. 100 or- and a certificate of verification from an Architect registered with Council of Architecture.
19. Declarations from the faculty engaged by the applicant Veterinary College **(Form-VI)**.
20. Declarations from the administrative, technical, support and ancillary staff recruited by the applicant Veterinary College **(Form-VII)**
21. Copies of Annual reports and Audited Balance sheets for the last three years of the applicant duly certified by a chartered accountant.
22. An affidavit about financial position regarding working capital (funds) as stated in Form – I in the form of FDRs, actual balance in Current & Savings accounts on a non-judicial stamp paper of Rs. 100 or/and a certificate by the Bank Branch Manager;
23. Authorization letter addressed to the bankers of the applicant authorizing the Central Government or Veterinary Council of India to make independent enquiries regarding the financial track record of the applicant.
24. Fee, as specified
25. Duly notarised undertaking to be submitted by a Competent or authorised person representing the applicant **(Form – VIII)**.
26. Duly notarised undertaking to be submitted by a Competent or authorised official representing the University, where a University is the applicant **(Form – IX).**
27. An affidavit, on a non-judicial stamp paper of Rs. 100, stating that the information given in the application is true and stating that if the applicant fails to disclose all the information or suppresses or misrepresents any of the information or if it is found that the information given in the application is false, it shall be liable to be proceeded against in accordance with law, including but not limited to its de-recognition or withdrawal of the permission granted to it under these Rules.
28. Any other documents that the applicant wishes to submit (Please indicate details).

FORM-II

NO OBJECTION CERTIFICATE FROM STATE GOVERNMENT/ UNION TERRITORY GOVERNMENT/ ADMINISTRATION

No. _____ Dated, _____

Government of _____

Department of Animal Husbandry, _____

To

(Applicant),

The (Name of the Applicant) _____ has applied for establishment of a Veterinary College at _____ (complete address of the Veterinary College with phone no.). On careful consideration of the proposal, the Government/ Administration of _____ (Name of the State/ Union Territory) has no objection towards the establishment of a Veterinary College as per the Veterinary Council of India Minimum Standards of Veterinary Education - (Bachelor of Veterinary Science and Animal Husbandry – Degree Course) Regulations, 2016, as amended from time to time and this No Objection Certificate is being issued to that effect.

Yours faithfully,

(SIGNATURE OF THE COMPETENT AUTHORITY

OF THE STATE GOVERNMENT/ UNION TERRITORY ADMINISTRATION)

FORM– III

SUBJECT: ESSENTIALITY CERTIFICATE

No. Dated,

Government of _____

Department of Animal Husbandry

To (Applicant),

Sir,

The desired certificate is as follows:-

(1) Number of veterinary college or institutions already existing in the State or Union territory.
(2) Number of seats available or no. of veterinary doctors graduating annually.
(3) Number of veterinary practitioners registered with the State Veterinary Council.
(4) Number of veterinary practitioners in Government service.
(5) Number of government posts lying vacant for veterinary practitioners

(6) Number of government posts in rural or difficult areas for veterinary practitioners.
(7) Number of veterinary practitioners registered with Employment Exchange.
(8) Veterinary practitioners to animal population ratio presently in the State or Union territory.
(9) Veterinary practitioners to animal patient ratio presently in the State or Union territory.
(10) Veterinary practitioners to animal patient ratio proposed to be achieved by the State.
(11) How the establishment of the Veterinary College would resolve the problem of deficiencies of qualified veterinary practitioners in the State/ Union Territory and improve the availability of such veterinary manpower in the State/ Union Territory.
(12) The restrictions imposed by the State Government/ Union Territory Administration, if any, on students who are not domiciled in the State/ Union Territory from obtaining admissions in the State, be specified.
(13) Full justification for establishing the proposed Veterinary College.

The (Name of the person) _____ has applied for establishment of a Veterinary College at _____. On careful consideration of the proposal, the Government of _____ has decided to issue an essentiality certificate to the applicant for the establishment of a Veterinary college with _____ (no. of seats).

It is certified that:-

1. The applicant owns and manages a Veterinary Clinical Complex (VCC) and Instructional Livestock Farm Complex (ILFC) as specified in the Minimum Standards of Veterinary Education Regulations which were established in _____ .
2. It is desirable to establish a Veterinary College in the public interest;
3. Establishment of a Veterinary College at _____ by (the name of the applicant) is feasible.
4. Adequate clinical material as per the Veterinary Council of India norms is available with the applicant.

It is further certified that in case the applicant fails to create infrastructure for the veterinary college as per the rules framed by the Central Government and the regulations framed by the Veterinary Council of India, as a result of which the permission for taking fresh admissions is withdrawn by the Central Government, the State Government/Union Territory shall fully cooperate in shifting the students already admitted in the Veterinary College to a recognised Veterinary College.

Yours faithfully,

(SIGNATURE OF THE COMPETENT AUTHORITY)

OF THE STATE GOVERNMENT/ UNION TERRITORY ADMINISTRATION)

FORM– IV

LETTER OF CONSENT FROM THE UNIVERSITY

Dated ……..…… No ……

Place ……..……..

University of …….

_____

_____

SUBJECT: CONSENT OF AFFILIATION TO _____ Name of Veterinary College with address)

The Honourable Vice-Chancellor on the basis of the report of the University Inspection Committee and approval of the Board of Management of the University of _____ (name of the affiliating university) has agreed to affiliate the _____ (name of the proposed Veterinary College) to be established by _____ (the Name of the applicant) subject to inclusion by the Central Government of the Veterinary College or the Veterinary Qualification (Bachelor of Veterinary Science and Animal Husbandry/ Bachelor of Veterinary Science) to be awarded by the University to the students graduating from the said Veterinary College in the first schedule to the Indian Veterinary Council Act 1984.

REGISTRAR

(Signature with Name and Office Seal)

FORM-V

INSPECTION REPORT OF THE AFFILIATION COMMITTEE OF THE UNIVERSITY ON AVAILABILITY OF FACILITIES AT THE VETERINARY INSTITUTE

The Affiliation Committee of the _____ University has inspected the facilities available at _____ (name of the Veterinary College) on _____and the inspection report is as under:-

1. Manpower
    (a) Faculty Strength
    (b) Technical Staff
    (c) Administrative Staff
    (d) Supporting Staff
2. Infrastructure
    (a) Land
    (b) Administrative Block
    (c) Department wise facilities including laboratory, lecture hall.
    (d) Library
    (e) Examination Hall
    (f) Veterinary Clinical Complex
    (g) Ambulance
    (h) Livestock Farm Complex
    (i) Equipment
    (j) Playing Ground
    (k) Hostel Facility(for boys and girls)
    (l) Departments

Certified that all the facilities available in the Veterinary College are as per the Minimum Standards for Veterinary Education Regulations, 2016

(Registrar)

FORM – VI

Veterinary Council of India

August Kranti Bhawan, Bhikaji Cama Place,

New Delhi

Recent passport size photograph of the teacher to be countersigned by the Dean/Principal

Declaration of teaching staff at …….

(to be filled up by the individual teacher)

For the academic session _____

1. Name of Teaching staff in BLOCK letters	First Name	Middle Name	Last Name
2. Fathers Name			
3. Mothers Name			
4. Date of Birth	Day	Month	Year
5. Age as on 01.04.2013			

6. Details of valid Photo ID of the incumbent :

7. Details of PAN Card Number -

8. Mode of receiving Salary :

9. Present Designation of the incumbent :

10. Proposed Designation

11. Employment details (where applicable):

(i)	Department	:
(ii)	Nature of appointment: kindly inform whether Regular or Adhoc or Contractual or Teaching Associate or Temporary	:
(iii)	Date of joining at the present institution	:
(iv)	Residential Address of incumbent	:
(v)	Permanent Address	:
(vi)	Telephone numbers	Office – Residence – Mobile No. –
(vii)	E-mail ID	:
(viii)	Pay scale of the present appointment	:
(ix)	Basic qualification	:
(x)	Post-graduate qualification, if any with subject of specialization	:
(xi)	Ph.D qualification, if any with subject	:
(xii)	State Veterinary Council Registration No. with date and validity	:
(xiii)	Name of the State Veterinary Council where registered	:

12. Details of qualifications:

Qualification	Name of College	Name of University	Year of passing	Marks obtained (in %) or OGPA	Subjects studied
Bachelor of Veterinary Science and Animal Husbandry					
M.V.Sc					
Ph.D					
Post- Doc					

13. Details of teaching experience *(in chronological orders starting from past to present)*:

Designation	Name of institutions	Department	From	To	Total Experience in years & months
Demonstrator or Teaching Associate					
Assistant Professor					
Associate Professor					
Professor					
Scientist *(in any research institute like ICAR, etc.)*					
Senior Scientist *(in any research institute like ICAR, etc.)*					
Principal Scientist *(in any research institute like ICAR, etc.)*					
As Veterinary practitioner in the State or Central A.H. department, etc.					
Private practice					
Total Teaching Experience					
Total Experience other than teaching like Extension, etc.					

Note: Kindly mention NA wherever the incumbent does not have the required category of experience as stated above.

DECLARATION BY THE INCUMBENT

(*To be submitted non-judicial stamp paper duly attested by a Notary public)*

1. I, Dr. _____ working as _____ in the department of _____ at _____ College and do hereby affirm that I am a full time teacher working from _____A.M. to _____ P.M. daily at this institution. I am not into practice anywhere neither am I employed anywhere else.
2. I am engaged to teach in _____ (name of the Veterinary College) for the academic session _____ and I have not made myself available to any other college or institution as a faculty for the said academic year.
3. Complete details with regard to work experience have been provided and nothing has been concealed by me.
4. It is declared that each statement and contents of this declaration and the documents and certificates submitted along with this declaration by the undersigned are absolutely true, correct and authentic. In the event of any statement made in this declaration subsequently turning out to be incorrect or false, the same shall amount to gross misconduct thereby rendering the undersigned liable for necessary action under the law. It is also understood that in such a case, the undersigned is also liable for disciplinary action including removal of his name from the register of the State Veterinary Council or Veterinary Council of India.

SIGNATURE WITH FULL NAME OF THE TEACHER

Date:

Place:

Endorsed by

1. Signed by the Principal or Dean of the College with Stamp and date indicating Full Name
2. Countersigned by the Chairman of the governing body with Full Name & Designation.

CHECK LIST OF DOCUMENTS TO BE SUBMITTED

S.No.	Documents	Submitted
1	Recent Passport size photo of the Faculty, signed by the Dean or Principal of the College.	Yes or No
2.	Copy of proof of Date of Birth	Yes or No
3.	Photo ID proof issued by Govt. Authorities: Passport or PAN Card or Voter ID or Driving License	Yes or No
4.	Certified copies of appointment order including promotion orders of present Institution.	Yes or No
5.	Copy of Passport or Voter Card or Electricity Bill or Telephone Bill or Driving License or Certification from Local Govt. Authorities to be attached as a proof of residence.	Yes or No
6.	Joining report of the present institution.	Yes or No
7.	Copies of Degree certificates of UG and PG degree.	Yes or No
8.	Copies of Registration Certificates of the SVC.	Yes or No
9.	Copy of experience certificate (s) for all teaching appointment(s)	Yes or No
10.	Relieving order from the previous institution.	Yes or No
11.	Copy of PAN Card	Yes or No
12.	Copy of Form 16 (TDS Certificate) for the last financial year.	Yes or No

13.	Provident Fund deduction Certificate & Statement	Yes or No
14.	Proof of salary received	Yes or No
15.	Copy of Aadhar Card (if available)	Yes or No

Signature & Full Name of the Teacher

Countersigned by Dean or Principal with Full Name & stamp

Date:

FORM – VII

Veterinary Council of India

August Kranti Bhawan, Bhikaji Cama Place,

New Delhi

Recent passport size photograph of the staff to be countersigned by the Dean/Principal

Declaration of staff at …….

(to be filled up by the individual)

For the academic session _____

1. Name in BLOCK letters	First Name	Middle Name	Last Name
2. Fathers Name			
3. Mothers Name			
4. Date of Birth	Day	Month	Year
5. Age as on 01.04.2013			

6. Details of valid Photo ID of the incumbent :

7. Details of PAN Card Number -

8. Mode of receiving Salary :

9. Present Designation of the incumbent :

10. Proposed Designation

11. Employment details (where applicable):

i.	Department	:
ii.	Nature of appointment: kindly inform whether Regular or Adhoc or Contractual or Temporary	:
iii.	Date of joining at the present institution	:
iv.	Residential Address of incumbent	:
v.	Permanent Address	:
vi.	Telephone numbers	Office – Residence – Mobile No. –
vii.	E-mail ID	:
viii.	Pay scale of the present appointment	:
ix.	Basic qualification	:
x.	Post-graduate qualification, if any, with subject of specialization	:

xi. Ph.D qualification, if any, with subject :

12. Details of qualifications (where applicable):

Qualification	Name of College	Name of University	Year of passing	Marks obtained (in %) or CGPA	Subjects studied

12. Details of experience *(in chronological orders starting from past to present)* :

Designation	Name of institutions	Department	From	To	Total Experience in years & months

Note: Kindly mention NA wherever the incumbent does not have the required category of experience as stated above.

DECLARATION BY THE INCUMBENT

(*To be submitted non-judicial stamp paper duly attested by a Notary public)*

1. I, _____ working as _____ in the department of _____ at _____ College and do hereby affirm that I am a _____ working from _____A.M. to _____ P.M. daily at this institution. I am not employed anywhere else.
2. Complete details with regard to work experience have been provided and nothing has been concealed by me.
3. It is declared that each statement and contents of this declaration and the documents and certificates submitted along with this declaration by the undersigned are absolutely true, correct and authentic. In the event of any statement made in this declaration subsequently turning out to be incorrect or false, the same shall amount to gross misconduct thereby rendering the undersigned liable for necessary action under the law.

SIGNATURE WITH FULL NAME

Date:

Place:

Endorsed by

1. Signed by the Principal or Dean of the College with Stamp and date indicating Full Name

2. Countersigned by the Chairman of the Governing body with Full Name & Designation.

CHECK LIST OF DOCUMENTS TO BE SUBMITTED

S.No.	Documents	Submitted
1.	Recent Passport size photo of the Employee, signed by the Dean or Principal of the College.	Yes or No
2.	Copy of proof of Date of Birth	Yes or No
3.	Photo ID proof issued by Govt. Authorities: Passport or PAN Card or Voter ID or Driving License	Yes or No
4.	Certified copies of appointment order including promotion orders of present Institution.	Yes or No
5.	Copy of Passport or Voter Card or Electricity Bill or Telephone Bill or Driving License or Certification from Local Govt. Authorities to be attached as a proof of residence.	Yes or No
6.	Joining report of the present institution.	Yes or No
7.	Copies of certificates showing educational qualifications	Yes or No
9.	Copy of experience certificate (s) for all previous appointment(s)	Yes or No
10.	Relieving order from the previous place of employment.	Yes or No
11.	Copy of PAN Card	Yes or No
12.	Copy of Form 16 (TDS Certificate) for the last financial year, if applicable.	Yes or No
13.	Provident Fund deduction Certificate & Statement	Yes or No
14.	Proof of salary received	Yes or No
15.	Copy of Aadhar Card (if available)	Yes or No

Signature and Full Name

Countersigned by Dean or Principal with Full Name and stamp

Date:

FORM – VIII

UNDERTAKING ON NON-JUDICIAL STAMP PAPER TO BE SUBMITTED BY AN AUTHORISED REPRESENTATIVE/ SIGNATORY REPRESENTING THE MANAGEMENT OF THE VETERINARY COLLEGE

I or we.....(Name of the Trustee or Chairman or Principal or Director or Head or Registrar) of the .... (name of the Veterinary College or Trust or Society, etc.) hereby undertake to comply with the following in connection with our application for grant of recognition of ..... (name of the Institution or Course or Programme) from the session..... (academic year).

1. That the management of the Veterinary College is liable to provide infrastructural, instructional and other facilities as per the norms, standards and guidelines specified by the rules framed by the Central Government and the regulations framed by the Veterinary Council of India from time to time.

2. That admission of students shall be made after satisfying the eligibility conditions and will be based on the merit achieved by the student in the entrance examination conducted by the State Government or University as per its policy.

3. That there shall be reservation of seats for Scheduled Caste/ Scheduled Tribe/ Other Backward Classes or handicapped and other categories as per the policy of State Government.

4. That admission to the Veterinary College shall be made only after permission is granted by the Central Government.

5. That full time staff shall be appointed on regular basis as per the qualifications specified by the Central Government and/ or the Veterinary Council of India through a reasonably wide advertisement and open selection on the basis of the recommendation of duly constituted selection committees or as per the norms of the affiliating university.

6. That the part time staff shall be appointed as per the guidelines of the State Government or the affiliating University.

7. That the academic and other staff of the institution (including part time staff) shall be paid such salary as per the service conditions of the Institution.

8. That the management shall discharge its statutory obligations relating to provident fund, pension, gratuity etc. in respect of all its employees.

9. That the governing body of the Veterinary College will make adequate funds available for providing satisfactory facilities and for proper programme implementation.

10. That the Veterinary College will strictly follow all conditions and norms specified under the Indian Veterinary Council Act., 1984 from time to time, conduct the programme in all earnestness, and submit itself to inspection by the Veterinary Council of India as required at any time.

11. In the event of non-compliance by the .....(name of the Society or Trustee or College or Institution etc.) with regard to the norms and standards and any other condition laid down or specified by the Veterinary Council of India from time to time, the Veterinary Council of India or the Central Government will be free to take all necessary measures for effecting withdrawal of its recognition or permission, without consideration of any other issue, and that all liabilities arising out of such a withdrawal would solely be that of the Veterinary College or its governing body.

12. That the governing body of the Veterinary College will not cause or allow discontinuation of the Course in any batch, and that where compelled, it will seek the concurrence of Veterinary Council of India for discontinuation on the completion of the year or batch.

13. That the governing body of the Veterinary College has seen, studied and understood the norms and conditions stipulated by the Veterinary Council of India for grant of permission or recognition including those stipulated by the minimum standards of veterinary education regulations, as the case may be, to the programme proposed and feels that they are satisfied or can be satisfied by the time of inspection, failing which it would be willing to accept an unfavourable decision.

14. The Veterinary College by virtue of the approval given by the Veterinary Council of India shall not automatically become claimant of any financial grant or assistance from the Central or State Govt., or support from Veterinary Council of India.

15. The name and address of the Veterinary College shall not be changed without obtaining prior approval of the Central Government.

(Signature of the authorized representative or signatory along with his or her official position and office Seal)

NAME IN BLOCK LETTERS

Place :

Date :

Witnesses :-

1.

FORM – IX

UNDERTAKING ON NON-JUDICIAL STAMP PAPER TO BE SUBMITTED BY THE AUTHORISED REPRESENTATIVE/ SIGNATORY REPRESENTING THE UNIVERSITY

I or we.....(Name of the Registrar or any other authority designated by the university) of the .....(name of the university) hereby undertake to comply with the following in connection with my or our application for grant of recognition of .....(name of the Institution or Course or Programme) from the session.....(academic year).

1. That necessary infrastructure, instructional and other facilities shall be provided as per the Minimum Standards of Veterinary Education Regulations, as amended from time to time.
2. That admission of students, satisfying the eligibility conditions shall be made on the basis of merit in the entrance examination conducted by the State Government or University as per its policy.
3. That there shall be reservation of seats for the Scheduled Caste or Scheduled Tribe or Other Backward Classes or handicapped and other categories as per the Policy of State Government.
4. That admission to the Course shall be made only after permission is granted by the Central Government.
5. That full time staff will be appointed on regular basis as per the qualifications specified in the Norms and Standards through a reasonably wide advertisement and open selection on the basis of the recommendation of duly constituted Selection Committees or as per the norms of the University.
6. That the part time staff will be appointed as per the guidelines of the State Government or the University.
7. That the academic and other staff of the institution (including part time staff) shall be paid such salary as may be specified by the University.
8. That the University shall discharge the statutory obligations relating to provident fund, pension, gratuity etc. in respect of all its employees.
9. That the University will make adequate funds available for providing satisfactory facilities and for proper programme implementation.
10. That the University will strictly follow all conditions and norms specified by Veterinary Council of India from time to time, conduct the programme in all earnestness, and submit itself to inspection by the Veterinary Council of India as required at any time.
11. In the event of non-compliance of norms and standards and any other condition laid down or specified by the Veterinary Council of India from time to time, the Veterinary Council of India or the Central Government will be free to take all necessary measures for effecting withdrawal of its recognition or permission, without consideration of any other issue, and that all liabilities arising out of such a withdrawal would solely be that of the University.
12. That the University will not cause or allow discontinuation of the Course in any year or for any batch, and that where compelled, it will seek the concurrence of Veterinary Council of India for discontinuation on the completion of the year or batch.
13. That the University has seen, studied and understood the norms and conditions by the Veterinary Council of India for grant of permission or recognition, as the case may be, to the programme proposed and feels that they are satisfied, or can be satisfied by the time of inspection, failing which it would be willing to accept an unfavourable decision.
14. The University by virtue of the approval given by the Veterinary Council of India shall not automatically become claimant of any financial grant or assistance from the Central or State Govt. or support from the Veterinary Council of India.

(Signature of the authorized representative/ signatory along with his or her official position and office Seal)

NAME IN BLOCK LETTERS

Place :

Date :

Witnesses :-

1.

2.

FORM– X

FORMAT OF APPLICATION FOR RENEWAL OF PERMISSION BY THE CENTRAL GOVERNMENT OF VETERINARY QUALIFICATION OR A VETERINARY COLLEGE

1.	**NAME OF THE APPLICANT**	
2.	**ADDRESS OF REGISTERED OFFICE OF THE APPLICANT** (No., Street, City, Pin Code, Telephone, Telex, Telefax)	
3.	**CATEGORY OF THE APPLICANT** (State Government or Union territory/ University or Statutory Autonomous Body or Society or Trust or Waqf)	
4.	**DATE and REGISTRATION NO.** (in case of a Society or Trust or Waqf) **OR OF RECOGNITION** (in case of a University)	
5.	**NAME AND ADDRESS OF THE VETERINARY COLLEGE**	
6.	**NAME OF THE VETERINARY QUALIFICATION**	
7.	**NAME OF AFFILIATING UNIVERSITY**	
8.	**BASIC INFASTRUCTURAL FACILITIES AVAILABLE FOR THE VETERINARY COLLEGE AND THE ATTACHED VCC AND ILFC (Phase Wise Requirements are Described in these Rules)**	
9.	**MANAGERIAL CAPABILITY:-** Composition of the applicant, particulars of governing body of the applicant, particulars of the head or project director of the Veterinary College along with their qualification and experience in the field of veterinary education	
10.	**FINANCIAL CAPABILITY** Balance Sheet for the last 3 years to be provided if the applicant is a Society or Trust or Waqf.	
11.	**Details of Original Letter of Permission** (Date of issuance and Serial No.)	

12. EQUIPMENT PROGRAMME

Department and room wise list of Equipments complete with year wise schedule of quantities and specifications of all equipments required for imparting veterinary education as per MSVE Regulations.

Projections made in the Application for Recognition	**Current Status**

13. MAN POWER PROGRAMME

Department wise and year wise list of recruited or appointed:
(a) Teaching staff (regular)

Projections made in the Application for Recognition	Current Status

(b) Technical staff (regular)

Projections made in the Application for Recognition	Current Status

(c) Administrative staff (regular)

Projections made in the Application for Recognition	Current Status

(d) Ancillary staff

Projections made in the Application for Recognition	Current Status

14. BUILDING PROGRAMME

Building wise built up area of:
(a) Veterinary college (departments, lecture theatre examination hall, museum etc.)

Projections made in the Application for Recognition	Current Status

(b) Veterinary Clinical Complex

Projections made in the Application for Recognition	Current Status

(c) Instructional Livestock Farm Complex

Projections made in the Application for Recognition	Current Status

(d) Faculty and staff housing

Projections made in the Application for Recognition	Current Status

(e) Students hostels

Projections made in the Application for Recognition	Current Status

(f) Administrative office

Projections made in the Application for Recognition	Current Status

(g) Library

Projections made in the Application for Recognition	Current Status

(h) Auditorium

Projections made in the Application for Recognition	Current Status

(i) Animal house

Projections made in the Application for Recognition	Current Status

(j) Cultural and recreational centre

Projections made in the Application for Recognition	Current Status

(k) Sports complex

Projections made in the Application for Recognition	Current Status

(l) Post-mortem section with incineration facility and waste management system

Projections made in the Application for Recognition	Current Status

(m) Cadaver and animal experimentation facility

Projections made in the Application for Recognition	Current Status

(n) Others (state name of the facility)

Projections made in the Application for Recognition	Current Status

15. PHASING AND SCHEDULING

Month wise schedule of activities completed indicating –
(a) Commencement and completion of building design

Projections made in the Application for Recognition	Current Status

(b) Local body approvals

Projections made in the Application for Recognition	Current Status

(c) Civil construction

Projections made in the Application for Recognition	Current Status

(d) Provision of engineering services and equipment

Projections made in the Application for Recognition	Current Status

(e) Requirement of staff

Projections made in the Application for Recognition	Current Status

(f) Phasing of commissioning

Projections made in the Application for Recognition	Current Status

16. REVENUE ASSUMPTIONS

(a) Fee structure
(b) Estimated annual revenue from various sources for the next five years

(c) Total Revenue from the Veterinary College since the date of grant of Letter of Intent

Projections made in the Application for Recognition	Current Status

17. EXPENDITURE ASSUMPTIONS

(a) Operating expenses for the next five years

Projections made in the Application for Recognition	Current Status

(b) Capital expenditure for the next five years

Projections made in the Application for Recognition	Current Status

18. OPERATING RESULTS

(a) Income statement for the last 3 years
(b) Cash flow statement for the last 3 years
(c) Annual returns for the last 3 years

NOTE:- For Items 11 to 13 a comparative statement showing the relevant Veterinary Council of India norms vis-à-vis infrastructure or faculty available or proposed to be made available should be annexed.

Signature of applicant

LIST OF ENCLOSURES:

1. Notarised copy of the Letter of Permission issued by the Central Government.
2. A Project Report showing that the targets envisaged in the DPR submitted by the applicant along with the application in Form-I have been met.
3. Certified copy of the title deeds or sale deeds or gift deeds or any other document in respect of any additional land acquired as proof of its ownership issued by the relevant competent authority.
4. Certified copy of the lease deed of any additional land leased, issued by the relevant competent authority.
5. Certified copy of zoning plans of the additional sites acquired indicating their land use or land use certificates and land conversion certificates where applicable issued by the relevant competent authority.
6. Certified copies of land records of the additional land acquired containing map of the area showing the land survey no. and location of the site of Veterinary College and ILFC as well as its access from the nearby and adjoining roads issued by the relevant competent authority.
7. Certified copies of the land records of the additional land acquired showing the contiguity of the land.
8. An affidavit on a non-judicial stamp paper of Rs. 100 by a member of the governing body of the applicant deposing that the applicant has clear title to the additional land acquired accompanied with verification or due diligence report by a practising advocate.
9. Plan of built up structure available exclusively for the Veterinary College with a table clearly mentioning all rooms, with carpet area of each room (in sq. ft), as specified in MSVE Regulations, certified by an architect registered with the Council of Architecture.
10. Copies of floor plans, sections and elevations of all existing academic buildings including area details certified by an architect registered with the Council of Architecture.
11. An affidavit about building construction with respect to approved building plan, carpet and built up area (sqft.) and number of rooms, LFC, VCC and other infrastructure with respect to Veterinary Council of India norms, on a non-judicial stamp paper of Rs. 100 or- and a certificate of verification from an Architect registered with Council of Architecture.
12. Declarations from the faculty engaged by the applicant Veterinary College except those already submitted by the applicant Veterinary College **(Form-VI)**.
13. Declarations from the administrative, technical, support and ancillary staff recruited by the applicant Veterinary College except those already submitted by the applicant Veterinary College **(Form-VII).**
14. Copies of Annual reports and Audited Balance sheets, cash flow statements and income statements for the last three years of the applicant duly certified by a chartered accountant.
15. Copies of Operating Expenses reports for the last three years of the applicant duly certified by a chartered accountant.
16. Copies of revenue projections for the next five years of the applicant duly certified by a chartered accountant.
17. An affidavit, on a non-judicial stamp paper of Rs. 100 or, stating that the information given in the application is true and stating that if the applicant fails to disclose all the information or suppresses or misrepresents any of the information or if it is found that the information given in the application is false, it shall be liable to be proceeded against in accordance with law, including but not limited to its de-recognition or withdrawal of the permission granted to it under these Rules
18. Any other documents that the applicant wishes to submit (Please indicate details).

FORM– XI

FORMAT OF APPLICATION FOR FINAL RECOGNITION BY THE CENTRAL GOVERNMENT OF VETERINARY QUALIFICATION OR A VETERINARY COLLEGE

1.	**NAME OF THE APPLICANT**	
2.	**ADDRESS OF REGISTERED OFFICE OF THE APPLICANT** (No., Street, City, Pin Code, Telephone, Telex, Telefax)	
3.	**CATEGORY OF THE APPLICANT** (State Government/ Union territory or University or Statutory Autonomous Body or Society or Trust or Waqf)	
4.	**DATE & REGISTRATION NO.** (in case of a Society or Trust or Waqf) **OR OF RECOGNITION** (in case of a University)	
5.	**NAME AND ADDRESS OF THE VETERINARY COLLEGE**	
6.	**NAME OF THE VETERINARY QUALIFICATION**	
7.	**NAME OF AFFILIATING UNIVERSITY**	
8.	**BASIC INFASTRUCTURAL FACILITIES AVAILABLE FOR THE VETERINARY COLLEGE AND THE ATTACHED VCC AND ILFC (Phase Wise Requirements are Described in these Rules)**	
9.	**MANAGERIAL CAPABILITY:-** Composition of the applicant, particulars of governing body of the applicant, particulars of the head or project director of the Veterinary College along with their qualification and experience in the field of veterinary education	
10.	**FINANCIAL CAPABILITY** Balance Sheet for the last 3 years to be provided if the applicant is a Society or Trust or Waqf.	
11.	**Details of Original Letter of Permission and Renewal of Permission** (Date of issuance and Serial no.)	

12. EQUIPMENT PROGRAMME

Department and room wise list of Equipments complete with schedule of quantities and specifications –

Requirements as per MSVE Regulations	Current Status

13. MAN POWER PROGRAMME

Department wise and year wise list of recruited or appointed:
(a) Teaching staff (regular)

Requirements as per MSVE Regulations	Current Status

(b) Technical staff (regular)

Requirements as per MSVE Regulations	Current Status

(c) Administrative staff (regular)

Requirements as per MSVE Regulations	Current Status

(d) Ancillary staff

Requirements as per MSVE Regulations	Current Status

14. BUILDING PROGRAMME

Building wise built up area of:
(a) Veterinary college (departments, lecture theatre examination hall, museum etc.)

Requirements as per MSVE Regulations	Current Status

(b) Veterinary Clinical Complex

Requirements as per MSVE Regulations	Current Status

(c) Instructional Livestock Farm Complex

Requirements as per MSVE Regulations	Current Status

(d) Faculty and staff housing

Requirements as per MSVE Regulations	Current Status

(e) Students hostels

Requirements as per MSVE Regulations	Current Status

(f) Administrative office

Requirements as per MSVE Regulations	Current Status

(g) Library

Requirements as per MSVE Regulations	Current Status

(h) Auditorium

Requirements as per MSVE Regulations	Current Status

(i) Animal house

Requirements as per MSVE Regulations	Current Status

(j) Cultural and recreational centre

Requirements as per MSVE Regulations	Current Status

(k) Sports complex

Requirements as per MSVE Regulations	Current Status

(l) Post-mortem section win incineration facility and waste management system

Requirements as per MSVE Regulations	Current Status

(m) Cadaver and animal experimentation facility

Requirements as per MSVE Regulations	Current Status

(n) Others (state name of the facility)

Requirements as per MSVE Regulations	Current Status

15. REVENUE ASSUMPTIONS AND COMPARISON

(a) Fee structure
(b) Estimated annual revenue from various sources for the next five years

Revenue Projections made in the Application for Recognition	Current Status

16. EXPENDITURE ASSUMPTIONS AND COMPARISON

(a) Operating expenses for the next five years

Projections made in the Application for Recognition	Current Status

(a) Capital Expenditure for the next five years

Projections made in the Application for Recognition	Current Status

17. OPERATING RESULTS

(a) Income statement since the grant of Letter of Permission
(b) Cash flow statement since the grant of Letter of Permission

(c) Expenditure Statement since the grant of Letter of Permission

Signature of applicant

LIST OF ENCLOSURES:

1. Notarised copy of the Letter of Permission issued by the Central Government.
2. Notarised copy of the Letter of Renewal of Permission issued by the Central Government.
3. A Project Report showing that the targets envisaged in the DPR submitted by the applicant along with the application in Form-I have been met.
4. Certified copy of the title deeds/ sale deeds/ gift deeds/ any other document in respect of any additional land acquired as proof of its ownership issued by the relevant competent authority.
5. Certified copy of the lease deed of any additional land leased, issued by the relevant competent authority.
6. Certified copy of zoning plans of the additional sites acquired indicating their land use or land use certificates and land conversion certificates where applicable issued by the relevant competent authority.
7. Certified copies of land records of the additional land acquired containing map of the area showing the land survey no. and location of the site of Veterinary College and ILFC as well as its access from the nearby and adjoining roads issued by the relevant competent authority.
8. Certified copies of the land records of the additional land acquired showing the contiguity of the land.
9. An affidavit on a non-judicial stamp paper of Rs. 100 by a member of the governing body of the applicant deposing that the applicant has clear title to the additional land acquired accompanied with verification or due diligence report by a practising advocate.
10. Plan of built up structure available exclusively for the Veterinary College with a table clearly mentioning all rooms, with carpet area of each room (in sq. ft), as specified in MSVE Regulations, certified by an architect registered with the Council of Architecture.
11. Copies of floor plans, sections and elevations of all existing academic buildings including area details certified by an architect registered with the Council of Architecture.
12. An affidavit about building construction with respect to approved building plan, carpet and built up area (sqft.) and number of rooms, LFC, VCC and other infrastructure with respect to Veterinary Council of India norms, on a non-judicial stamp paper of Rs. 100 or- and a certificate of verification from an Architect registered with Council of Architecture.
13. Declarations from the faculty engaged by the applicant Veterinary College except those already submitted by the applicant Veterinary College **(Form-VI)**.
14. Declarations from the administrative, technical, support and ancillary staff recruited by the applicant Veterinary College except those already submitted by the applicant Veterinary College **(Form-VII)**
15. Copies of Annual reports and Audited Balance sheets, cash flow statements, income statements, for the last three years of the applicant duly certified by a chartered accountant.
16. Copies of Operating Expenses reports for the last three years of the applicant duly certified by a chartered accountant.
17. Copies of revenue projections for the next five years of the applicant duly certified by a chartered accountant.
18. An affidavit, on a non-judicial stamp paper of Rs. 100/- or, stating that the information given in the application is true and stating that if the applicant fails to disclose all the information or suppresses or misrepresents any of the information or if it is found that the information given in the application is false, it shall be liable to be proceeded against in accordance with law, including but not limited to its de-recognition or withdrawal of the permission granted to it under these Rules.
19. Any other documents that the applicant wishes to submit. (Please indicate details).

FORM - XII

FORMAT OF APPLICATION FOR INCREASE IN ADMISSION CAPACITY OF RECOGNISED VETERINARY COLLEGES

1. NAME AND ADDRESS OF THE EXISTING VETERINARY COLLEGE, VETERINARY HOSPITAL/ VCC AND ILFC:

2. DETAILS OF THE EXISTING VETERINARY COLLEGE, VETERINARY HOSPITAL/ VCC, ILFC AND ANCILLARY BUILDINGS:

(a) Current sanctioned admission capacity
(b) Built up area
(c) Architectural and lay-out plans
(d) Equipments
(e) Capacity and configuration of engineering services
(f) Capacity and configuration of hospital services
(g) Capacity and configuration of other ancillary and support services
(h) Category wise staff strength

3. DETAILS ABOUT ADDITIONAL LAND FOR EXPANSION OF EXISTING VETERINARY COLLEGE/ VETERINARY HOSPITAL AND LIVESTOCK FARMS:

(a) Land Particulars
(b) Distance from the proposed Veterinary College (in case of ILFC)
(c) Plot size
(d) Authorised land usage
(e) Geography
(f) Soil Conditions
(g) Road access
(h) Availability of public transport
(i) Electric Supply
(j) Water Supply
(k) Sewage connection
(l) Communication facilities

4. UPGRADED VETERINARY PROGRAMME

(a) Proposed enhanced admission capacity.

(b) Details about additional clinical and para-clinical disciplines envisaged under the expansion scheme

5. UPGRADED FUNCTIONAL PROGRAMME:

(a) Specialty wise and service wise functional requirements
(b) Area Distribution

6. BUILDING EXPANSION PLAN:

Year wise additional built-up area to be provided for:–
(a) Veterinary Hospital or VCC

(b) Departments
(c) Staff housing

(d) Staff and students hostels
(e) Livestock farm

(f) Other ancillary buildings

7. EQUIPMENT PROGRAMME

Upgraded room-wise list of all equipments required for imparting veterinary education as per MSVE Regulations;

8. UPGRADAED ENGINEERING SERVICES

Details about upgradation or addition in the capacity and configuration of engineering services (for maintenance work), and hospital and farm services

9. UPGRADED MANPOWER PROGRAMME

Department-wise distribution of
(a) Teaching staff (regular)
(b) Technical staff (regular)

(c) Administrative staff (regular)

(d) Ancillary staff

10. PLANNING AND LAYOUT

Upgraded master plan of the veterinary hospital/ VCC along with

(a) Layout plan
(b) Sections
(c) Elevations
(d) Floor wise area calculations of the hospital
(e) Ancillary buildings

11. PHASING AND SCHEDULING OF THE EXPANSION PROGRAMME

Month wise schedule of activities indicating-

(a) Commencement and completion of building design
(b) Local body approvals
(c) Civil construction

(d) Provision of engineering and hospital services
(e) Provision of equipment
(f) Recruitment of staff

12. PROJECT COST OF THE EXPANSION PROGRAMME

Cost of additional –
(a) Land
(b) Buildings
(c) Engineering services
(d) Equipments

(e) Furniture and fixtures
(f) Preliminary and pre-operative expenses

13. MEANS OF FINANCING THE PROJECT

(a) Contribution of the applicant
(b) Grants
(c) Donations
(d) Equity
(e) Term loans
(f) Other sources, if any.

14. REVENUE ASSUMPTIONS

Income from-

(a) Fee structure
(b) Estimated annual revenue from other sources for the next five years

(c) Projected total revenue statements for the next five years

15. EXPENDITURE ASSUMPTIONS:

(a) Estimated operating expenses for the next five years

(b) Estimated capital expenditure for the next five years

16. OPERATING RESULTS

(a) Income statements for the last three years
(b) Cash flow statements for the last three years
(c) Annual returns for the last three years

Name and Signature of Applicant

LIST OF ENCLOSURES:

1. Certified copies of complete constitutional documents of the applicant.
2. Certified copy of Certificate of registration or incorporation of the applicant.
3. Certified copy of the resolution or other authorisation document by which the applicant has been authorised to increase the admission capacity of the Veterinary College and to make an application under these Rules for the purpose.
4. No Objection Certificate from the State Government or the Union Territory Government or Administration, as the case may be **(Form-XIII)**.
5. Essentiality Certificate issued by the respective State Government or Union territory Government or Administration, as the case may be **(Form-XIV)**.
6. Certified copy of the letter of consent issued by a University for increase in the admission capacity **(Form XV)**.
7. Report from the concerned University verifying the physical and other facilities available at the Veterinary College **(Form-V)**.

8. A Detailed Project Report including the building programme, educational programme, functional programme, equipment programme and man power programme.

9. Certified copy of the title deeds/ sale deeds/ gift deeds/ any other document in respect of the total available land as proof of its ownership issued by the relevant competent authority.

10. Certified copy of the lease deed of the land, where the land is leased issued by the relevant competent authority.

11. Certified copy of zoning plans of the available sites indicating their land use or land use certificates and land conversion certificates where applicable issued by the relevant competent authority.

12. Certified copies of land records containing map of the area showing the land survey no. and location of the site of Veterinary College and ILFC as well as its access from the nearby and adjoining roads issued by the relevant competent authority.

13. Certified copies of the land records showing the contiguity of the land.

14. An affidavit on a non-judicial stamp paper of Rs. 100 by a member of the governing body of the applicant deposing that the applicant has clear title to the land accompanied with verification or due diligence report by a practising advocate.

15. Certified copy of the Site Plan and building plan of the Veterinary College prepared by an architect registered with the Council for Architecture (COA) and duly approved by the competent Plan Sanctioning Authority of the concerned State or Union Territory Administration.

16. Plan of built up structure available exclusively for the Veterinary College with a table clearly mentioning all rooms, with carpet area of each room (in sq. ft), as specified in MSVE Regulations, certified by an architect registered with the Council of Architecture.

17. Copies of floor plans, sections and elevations of all existing academic buildings including area details certified by an architect registered with the Council of Architecture.

18. An affidavit about building construction with respect to approved building plan, carpet and built up area (sqft.) and number of rooms, LFC, VCC and other infrastructure with respect to Veterinary Council of India norms, on a non-judicial stamp paper of Rs. 100 or- and a certificate of verification from an Architect registered with Council of Architecture.

19. Copies of Annual reports and Audited Balance sheets for the last three years of the applicant duly certified by a chartered accountant.

20. An affidavit about financial position regarding working capital (funds) in the form of FDRs, actual balance in Current & Savings accounts on a non-judicial stamp paper of Rs. 100 or/and a certificate by the Bank Branch Manager;

21. Authorization letter addressed to the bankers of the applicant authorizing the Central Government or Veterinary Council of India to make independent enquiries regarding the financial track record of the applicant.

22. Fee, as specified

23. Duly notarised undertaking to be submitted by a Competent or authorised person representing the applicant **(Form – XVI)**.

24. Duly notarised undertaking to be submitted by a Competent or authorised official representing the University, where a University is the applicant **(Form – XVII).**

25. An affidavit, on a non-judicial stamp paper of Rs. 100 stating that the information given in the application is true and stating that if the applicant fails to disclose all the information or suppresses or misrepresents any of the information or if it is found that the information given in the application is false, it shall be liable to be proceeded against in accordance with law, including but not limited to its de-recognition or withdrawal of the permission granted to it under these Rules.

26. Any other documents that the applicant wishes to submit (Please indicate details).

FORM-XIII

NO OBJECTION CERTIFICATE FROM STATE GOVERNMENT/ UNION TERRITORY GOVERNMENT/ ADMINISTRATION

No. _____ Dated, _____

Government of _____

Department of Animal Husbandry, _____

To

(Applicant),

The (Name of the Applicant) _____ has applied for increase in the admission capacity of _____ (name of Veterinary College) at _____ (complete address of the Veterinary College with phone no.). On careful consideration of the proposal, the Government/ Administration of _____ (Name of the State /Union Territory) has no objection towards the increase in the admission capacity of the said Veterinary College and this No Objection Certificate is being issued to that effect.

Yours faithfully,

(SIGNATURE OF THE COMPETENT AUTHORITY

OF THE STATE GOVERNMENT/ UNION TERRITORY ADMINISTRATION)

FORM– XIV

SUBJECT: ESSENTIALITY CERTIFICATE

No. Dated,

Government of _____

Department of Animal Husbandry

To (Applicant),

Sir,

The desired certificate is as follows:-

(1) No. of Veterinary Colleges or Institutions already existing in the State/ Union Territory.

(2) Number of seats available or number of veterinary practitioners graduating annually.

(3) Number of veterinary practitioners registered with the State Veterinary Council.

(4) Number of veterinary practitioners in Government service.

(5) Number of Government posts lying vacant for veterinary practitioners

(6) Number of Government posts in rural or difficult areas for veterinary practitioners.

(7) Number of veterinary practitioners registered with Employment Exchange.

(8) Veterinary practitioners to animal population ratio presently in the State.

(9) Veterinary practitioners to animal patient ratio presently in the State.

(10) Veterinary practitioners to animal patient ratio proposed to be achieved by the State.

(11) How the increase in admission capacity of the Veterinary College would resolve the problem of deficiencies of qualified veterinary practitioners in the State/ Union Territory and improve the availability of such veterinary practitioners in the State/ Union Territory.

(12) The restrictions imposed by the State Government/ Union Territory Administration, if any, on students who are not domiciled in the State/ Union Territory from obtaining admissions in the State/ Union Territory, be specified.

(13) Full justification for increasing the admission capacity of the Veterinary College.

The (Name of the applicant) has applied for increasing the admission capacity of (Name of the Veterinary College) situated at (Address of the Veterinary College). On careful consideration of the proposal, the Government of _____ (Name of the State/ Union Territory) has decided to issue an essentiality certificate to the applicant for the increasing the admission capacity of the said Veterinary college to _____ (no. of seats) from _____ (no. of seats).

It is certified that:-

1. The applicant owns and manages a Veterinary Clinical Complex (VCC) and Instructional Livestock Farm Complex (ILFC) as specified in the Minimum Standards of Veterinary Education Regulations which was established in _____ .
2. It is desirable to increase the admission capacity of (Name of the Veterinary College) college to _____ (no. of seats) from _____ (no. of seats) in public interest;
3. The said increase in the admission capacity of (Name of the Veterinary College) is feasible.
4. Adequate clinical material as per the Veterinary Council of India norms is available with the applicant.

It is further certified that in case the applicant fails to create infrastructure for the enhanced admission capacity of the veterinary college as per the rules framed by the Central Government and the regulations framed by the Veterinary Council of India, as a result of which the permission for increasing the admission capacity is refused by the Central Government, the State Government/ Union Territory Administration shall fully cooperate in ensuring that the veterinary college does not admit students more than its sanctioned admission capacity.

Yours faithfully,

(SIGNATURE OF THE COMPETENT AUTHORITY)

FORM– XV

LETTER OF CONSENT FROM THE UNIVERSITY

Dated …… No ……

Place ……..

University of …….

_____

_____

SUBJECT: LETTER OF CONSENT IN FAVOUR OF _____ (Name of Veterinary College with address)

The Honourable Vice-Chancellor on the basis of the report of the University Inspection Committee and approval of the Board of Management of the University of _____ (name of the affiliating university) hereby consents to the increase in admission capacity of _____ (name of the Veterinary College) from ____ (no. of seats) to ____ (no. of seats).

REGISTRAR

(Signature with Name and Office Seal)

FORM – XVI

Undertaking on non-judicial stamp paper to be submitted by an authorised representative/ signatory representing the Management of the Veterinary College

I or we ..... (Name of the Trustee or Chairman or Principal or Director or Head or Registrar) of the .... (name of the Veterinary College or Trust or Society, etc.) hereby undertake to comply with the following in connection with our application for increase in admission capacity of ..... (name of the Veterinary College) from the session..... (academic year).

1. That the management of the Veterinary College is liable to provide infrastructural, instructional and other facilities as per the norms, standards and guidelines specified by the rules framed by the Central Government and the regulations framed by the Veterinary Council of India from time to time.

2. That admission of students shall be made after satisfying the eligibility conditions and will be based on the merit achieved by the candidates in the entrance examination conducted by the State Government or the University as per its policy.

3. That there shall be reservation of seats for Scheduled Caste/ Scheduled Tribe/ Other Backward Classes / handicapped and other categories as per the policy of State Government.

4. That the proposed increase in admission capacity of the Veterinary College shall be effected only after permission is granted by the Central government.

5. That full time staff shall be appointed on regular basis as per the qualifications specified by the Central Government and/ or the Veterinary Council of India through a reasonably wide advertisement and open selection on the basis of the recommendation of duly constituted selection committees or as per the norms of the affiliating university.

6. That part time staff shall be appointed as per the guidelines of the State Government or the affiliating University.

7. That the academic and other staff of the veterinary college (including part time staff) shall be paid such salary as per the service conditions of the veterinary college.

8. That the management shall discharge its statutory obligations relating to provident fund, pension, gratuity etc. in respect of all its employees.

9. That the governing body of the Veterinary College will make adequate funds available for providing satisfactory facilities and for proper programme implementation in light of the increased admission capacity of the Veterinary College.

10. That the Veterinary College will strictly follow all conditions and norms specified under the Indian Veterinary Council Act., 1984 from time to time, conduct the programme in all earnestness, and submit itself to inspection by the Veterinary Council of India as required at any time.

11. In the event of non-compliance by the .....(name of the Society or Trustee or College or Institution etc.) with regard to the norms and standards and any other condition laid down or specified by the Veterinary Council of India from time to time, the Veterinary Council of India or the Central Government will be free to take all necessary measures for effecting withdrawal of its recognition or permission, without consideration of any other issue, and that all liabilities arising out of such a withdrawal would solely be that of the Veterinary College or its governing body.

12. That the governing body of the Veterinary College will not cause or allow discontinuation of the Course in any batch, and that where compelled, it will seek the concurrence of Veterinary Council of India for discontinuation on the completion of the year or batch.

13. That the governing body of the Veterinary College has seen, studied and understood the norms and conditions stipulated for grant of permission for increasing the admission capacity of a Veterinary College including those stipulated by the Minimum Standards of Veterinary Education Regulations, 2016, as the case may be, to the proposed increase and feels that they are satisfied or can be satisfied by the time of inspection, failing which it would be willing to accept an unfavourable decision.

14. The Veterinary College by virtue of the approval given by the Veterinary Council of India shall not automatically become claimant of any financial grant or assistance from the Central or State Government., or support from Veterinary Council of India.

15. The name and address of the Veterinary College shall not be changed without obtaining prior approval of the Central Government.

(Signature of the authorized representative/ signatory along with his or her official position and office Seal)

NAME IN BLOCK LETTERS

Place :

Date :

Witnesses :-

1.

2.

FORM – XVII

UNDERTAKING ON NON-JUDICIAL STAMP PAPER TO BE SUBMITTED BY THE AUTHORISED REPRESENTATIVE/ SIGNATORY REPRESENTING THE UNIVERSITY

I or we ..... (Name of the Registrar or any other authority designated by the university) of the .....(name of the university) hereby undertake to comply with the following in connection with my or our application for increase in admission capacity of ..... (name of the Veterinary College) from the session.....(academic year).

1. That necessary infrastructure, instructional and other facilities shall be provided as per the Minimum Standards of Veterinary Education Regulations, 2016 as amended from time to time.

2. That admission of students, satisfying the eligibility conditions shall be made on the basis of merit in the entrance examination conducted by the State Government or University as per its policy.

3. That there shall be reservation of seats for the Scheduled Caste or Scheduled Tribe or Other Backward Classes or handicapped and other categories as per the Policy of State Govt.

4. That the proposed increase in admission capacity of the Veterinary College shall be effected only after permission is granted by the Central government.

5. That full time staff will be appointed on regular basis as per the qualifications specified in the norms and standards of the university through a reasonably wide advertisement and open selection on the basis of the recommendation of duly constituted Selection Committees or as per the norms of the University.

6. That the part time staff will be appointed as per the guidelines of the State Government or the University.

7. That the academic and other staff of the institution (including part time staff) shall be paid such salary as may be specified by the rules of the University.

8. That the University shall discharge its statutory obligations relating to provident fund, pension, gratuity etc. in respect of all its employees.

9. That the University will make adequate funds available for providing satisfactory facilities and for proper programme implementation in light of the increased admission capacity of the Veterinary College.

10. That the University will strictly follow all conditions and norms specified by Veterinary Council of India from time to time, conduct the programme in all earnestness, and submit itself to inspection by the Veterinary Council of India as required at any time.

11. In the event of non-compliance of norms and standards and any other condition laid down or specified by the Veterinary Council of India from time to time, the Veterinary Council of India or the Central Government will be free to take all necessary measures for effecting withdrawal of its recognition or permission, without consideration of any other issue, and that all liabilities arising out of such a withdrawal would solely be that of the University.

12. That the University will not cause or allow discontinuation of the Course in any year or for any batch, and that where compelled, it will seek the concurrence of Veterinary Council of India for discontinuation on the completion of the year or batch.

13. That the University has seen, studied and understood the norms and conditions stipulated for grant of permission for increasing the admission capacity of a Veterinary College including those stipulated by the Minimum Standards of Veterinary Education Regulations, 2016, as the case may be, to the proposed increase and feels that they are satisfied or can be satisfied by the time of inspection, failing which it would be willing to accept an unfavourable decision.

14. The University by virtue of the approval given by the Veterinary Council of India shall not automatically become claimant of any financial grant or assistance from the Central or State Govt. or support from the Veterinary Council of India.

(Signature of the authorized representative/ signatory along with his or her official position and office Seal)

NAME IN BLOCK LETTERS

Place :

Date :

Witnesses :-

1.

2.

[F.No. K-12052-5(5251)/3/2017-LH]

MIHIR KUMAR SINGH, Jt. Secy.

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सहायक रजिस्ट्रार (शैक्षणिक)
कृते रजिस्ट्रार

ग्रेड पॉइंट (जीपी), क्रेडिट पॉइंट (सीपी), ग्रेड पॉइंट औसत (जीपीए) तथा कुल ग्रेड पॉइंट औसत (ओजीपीए) की गणना

- किसी विषय में **जीपी** निकालने के लिए, छात्र द्वारा 100 में से प्राप्त अंकों को 10 से विभाजित किया जाएगा।
- किसी विषय में **सीपी** निकालने के लिए, जीपी को क्रेडिट घंटों से गुणा किया जाएगा।
- **जीपीए**= कुल अर्जित क्रेडिट पॉइंटों के योग को क्रेडिट घंटों के योग से विभाजित किया जाएगा।
- **ओजीपीए**= अर्जित किए गए क्रेडिट पॉइंटों के कुल योग के योग को क्रेडिट घंटों के कुल योग से विभाजित किया जाएगा।
- **प्रतिशत अंक**= ओजीपीए का 10 से गुणनफल।

टी. पी. सिंह, सहायक सचिव

[विज्ञापन III/4/असा./168(141)]

MINISTRY OF AGRICULTURE AND FARMERS WELFARE

(Department of Animal Husbandry, Dairying and Fisheries)

(VETERINARY COUNCIL OF INDIA)

NOTIFICATION

New Delhi, the 8th July, 2016

F. No. 12-5/2015-VCI.—In exercise of the powers conferred by sub-section (1) of section 66 read with sub-section (1) of section 22 and clause (b) of sub-section (1) of section 21 of the Indian Veterinary Council Act, 1984 (52 of 1984) and in supersession of the Veterinary Council of India – Minimum Standards of Veterinary Education – Degree Course (B.V.Sc. & A.H.) Regulations, 2008, the Veterinary Council of India, with the previous approval of the Central Government hereby makes the following regulations, namely:-

PART I

PRELIMINARY

1. **Short title and commencement -**

(1) These regulations may be called the Veterinary Council of India Minimum Standards of Veterinary Education- (Bachelor of Veterinary Science and Animal Husbandry - Degree Course) Regulations, 2016.

(2) Provided that any increase in the annual admission may be made after seeking the permission of the Council and may not be done unilaterally by the University. Such increase shall be allowed subject to proportionate increase in facilities and manpower as provided under these Regulations and verification by the Council as per Section 19 of the IVC Act.

(3) They shall come into force on the date of their publication in the Official Gazette.

2. **Definitions – (1) In these regulations, unless the context otherwise requires,-**

(a) "Act" means the Indian Veterinary Council Act, 1984 (52 of 1984);

(b) "Course" means teaching units of a subject to be covered within a professional year as prescribed in the syllabus of a department;

(c) "Credit Hour" means the weekly unit of work recognised for any particular course as per the course catalogue issued by the University. A lecture class of one hour per week shall be counted as one credit whereas a practical class of two hours duration and a working period of three hours in the Veterinary Clinical Complex (VCC) and Livestock Farm Complex (LFC) per week shall count as one credit.

(d) "Degree Course" means the course of study in Veterinary Science, namely Bachelor of Veterinary Science and Animal Husbandry (B.V.Sc. and A.H.);

(e) "First Schedule" and "Second Schedule" means the First Schedule and Second Schedule respectively appended to the Act;

(f) "Guidelines or Instructions" means the guidelines or instructions issued by the Veterinary Council of India from time to time for uniform implementation of these regulations;

(g) "Inspector" means the Veterinary Inspector appointed under sub-section (1) of section 19 of the Act;

(h) "President" means the President of the Veterinary Council of India;

(i) "qualifying examination" means Higher Secondary (10+2) examination or equivalent conducted by a State Board of Education or Central Board of Education;

(j) "Professional Year" means a period consisting of minimum two hundred and ten instructional days, excluding annual examination days except fourth professional year which consists of 315 instructional days;

(k) "Secretary" means the Secretary of the Veterinary Council of India appointed under section 11 of the Act;

(l) "Syllabus" and "curriculum" means the syllabus and curriculum for courses of study as specified by the Veterinary Council of India;

(m) "teaching experience" means the experience of teaching in the subject concerned in a recognised veterinary college or provisionally recognised veterinary college or recognised veterinary university after obtaining post graduate qualification in the concerned subject;

(n) "Veterinary hospital or institution" means the Veterinary Clinical Complex of the college or Veterinary hospital of State Government or private hospital recognised by the University and duly approved by Veterinary Council of India which shall have the basic infrastructure such as diagnostic lab, X-ray, Ultrasonographic facilities etc. or institution relevant to livestock health, reproduction and diagnostics by whatever name called;

(o) "Visitor" means a Visitor appointed under sub-section (1) of section 20 of the Act;

(p) "recognised veterinary college" means any veterinary college or institution either a constituent College of the University or affiliated to a University and engaged in imparting teaching of Bachelor of Veterinary Science and Animal Husbandry degree course and recognised by the Central Government on the recommendation of Veterinary Council of India after inclusion in the First Schedule for the Act under overall administrative control of the Dean or Principal or Associate Dean;

(q) "University" means any university or other institution within or outside India which grants degrees and post graduate diplomas.

(r) "provisionally recognised veterinary college" means a newly established veterinary college where admission shall be allowed by the Veterinary Council of India on annual basis after conducting inspection and subject to fulfillment of Minimum Standards of Veterinary Education regulations 2016.

(2) Words and expressions used herein and not defined but are defined in the Act shall have the same meaning as assigned to them in the Act.

PART II

COURSE OF STUDY

3. **Degree Course-** (1) A degree course of Bachelor of Veterinary Science and Animal Husbandry shall comprise of a course of study consisting of curriculum and syllabus specified in Part IV of these regulations spread over five and half complete professional years including a compulsory internship of "one year" duration undertaken after successful completion of all credits as prescribed in the syllabus.

(2) During the course of study there shall be training in veterinary clinical complex or state veterinary hospital, private veterinary hospital, animal farm or livestock farm complex as part of the course.

4. **Duration of professional year-**

(1) First professional year of Bachelor of Veterinary Science and Animal Husbandry classes shall commence latest by 1st September of every year.

(2) The annual examination shall be conducted prior to summer vacation for the year.

(3) Each professional year shall cover at least two hundred ten days of instruction excluding time spent for annual examinations.

5. **Procedure to be adopted for imparting training in the veterinary hospitals or institutions and internship with suitable adjustment at-**

(1) The Veterinary Clinical Complex shall be a separate department in every veterinary college under the independent charge of a Faculty Member of the rank of a Professor with specialisation in any of the clinical subjects and shall operate round the clock.

(2) Veterinary Clinical Complex shall be recognised only if it has an average minimum of 500 outdoor cases and 10 indoor cases in a month.

(3) In case the Veterinary Clinical Complex does not have requisite number of out-patient and in-patient cases as provided in sub-regulation(2) above, the University or College shall set up outreach facilities not beyond twenty km radius of the College to fulfill the above minimum requirements. Such outreach clinical facility shall have the entire infrastructure as prescribed for a veterinary clinical complex under these regulations.

(4) The attached veterinary hospitals shall have properly built in-door wards, client accommodation, emergency service and the necessary facilities to conduct and demonstrate or train all medical, surgical and gynaecological cases and separate "in Health" care facilities like artificial insemination, pregnancy diagnosis, animal birth control, health verification tests, prophylaxis etc.

(5) There shall be residential accommodation for clinical and hospital staff and suitable accommodation for students on emergency or night duties and cafeteria or canteen for staff, students and clients.

(6) All the concerned staff on duty in the Veterinary Clinical Complex or veterinary hospital or both shall be responsible for the treatments and allied public services and shall invariably attend the clinics including emergencies or night duties and on Sundays orany holidays and the staff as well as students shall be properly attired {Apron, Coverall (dangree), etc} and equipped for the performance of clinical duties.

(7) The teaching institutions shall maximally utilise the animal or patient information observing all the time the principles of animal welfare and ethics, and arrange the followong namely:-

(i) the teaching material in the form of clinical cases in sufficient number, variety and species;

(ii) subsidized treatment to encourage larger attendance in teaching veterinary hospitals;

(iii) procure or provide free maintenance to, cases of academic interest or typical cases of teaching value so that students can benefit from them;

(iv) in the case of deathoreuthanasia detailed necropsy be demonstrated and specimens preserved;

(v) maintenance of clinical data registers;

(8) The Livestock Farm Complex shall be a separate department in every veterinary college under the independent charge of a faculty member of the rank of a Professor of animal production departments preferably with specialization in Livestock Production Management subject and shall operate twenty four hours and the farm complex shall be for teaching in rearing of livestock species and poultry with the following facilities namely:-

(i) housing, feeding, breeding and management of large and small ruminant, piggery, poultry and animals of regional interest;

(ii) record keeping;

(iii) storage facilities for feed and fodder;

(iv) production facilities for fodder crops;

(v) suitable housing for managerial and technical staff;

(9) In case other facilities like Gaushalas or community farms are utilised, these shall be in addition to the above requirements but shall not serve as a substitute

(10) Being a twenty four hours service there shall be suitable accommodation for staff and students on duties.

(11) All the concerned staff on duty in the Livestock Farm Complex shall be responsible for management including emergencies of the animals in the livestock Farm and they shall arrange and supervise the routine managemental practices from time to time and shall maintain records for the same and shall also be responsible for production activity in each of the units

PART III

ADMISSION TO THE BACHELOR OF VETERINARY SCIENCE AND ANIMAL HUSBANDRY DEGREE COURSE

6. **Criteria for admission -** A candidate shall not be admitted to Bachelor of Veterinary Science and Animal Husbandry degree course unless,

(a) he or she has completed the minimum age of 17 years and the maximum age of 25 years on or before the 31st December of that year of his or her admission to the 1st year of Bachelor of Veterinary Science and Animal Husbandry course; and there shall be relaxation of maximum age by five years for Scheduled Caste or Scheduled Tribe or Other Backward Class candidates.

(b) he or she has passed the qualifying examination as defined under these regulations with the subjects of Physics, Chemistry, Biology or Biotechnology and English (as a core course) and obtained marks as specified under regulations (7) or an examination equivalent to intermediate science examination of an Indian University or Board recognised by the Association of Indian Universities taking Physics, Chemistry and Biology including a practical test in each of these subjects and English.

7. **Selection of students – (1)** The selection of students for admission to Bachelor of Veterinary Science and Animal Husbandry Degree Course in Government or Private Colleges shall only be on the basis of merit through a competitive entrance examination conducted by University or State Government or Veterinary Council of India to achieve a uniform evaluation, as there may be variation among students at qualifying examinations conducted by different agencies and reservation policy shall be as per Government of India for Veterinary Council of India seats and for States as per their reservation policy.

(2) To be eligible for competitive entrance examination, a candidate shall have to pass any of the qualifying examinations as enumerated under the head, "Admission to Bachelor of Veterinary Science and Animal Husbandry Degree Course" specified under regulation 6.

(3) A candidate under General Category for admission to the Bachelor of Veterinary Science and Animal Husbandry degree course shall have to qualify in each of the subjects of English, Physics, Chemistry and Biology, and obtained 50% marks in aggregate of these subjects, at the qualifying examination and admission of students to B.V.Sc.and A.H. degree course shall be made only on the basis of his or her merit in the competitive entrance examination and no other merit or weightage shall be considered for admission to Bachelor of Veterinary Science and Animal Husbandry degree course.

(4) In respect of candidates belonging to the Scheduled Castes or the Scheduled Tribes or other special category of students as specified by the Government from time to time, marks required for admission shall be 5% less than that prescribed for general category i.e 47.5 % and where the seats reserved for the Scheduled Caste and the Scheduled Tribes students in any State cannot be filled for want of requisite number of candidates fulfilling the minimum requirement prescribed from that State, then such vacancies shall be filled up on all India basis with students belonging to the Scheduled Castes and Scheduled Tribes obtaining not less than the minimum prescribed pass percentage.

(5) The students who are educated abroad seeking admission in veterinary colleges in India should have passed the subjects of Physics, Chemistry, Biology or Biotechnology and English up to the 12th Standard level with 50% marks in aggregate of these subjects.

(6) Sponsored candidates shall have to qualify the admission procedures as laid down for the students under general category.

(7) Admission of candidates to Bachelor of Veterinary Science and Animal Husbandry degree course under bilateral exchange programme shall be regulated by Veterinary Council of India or on recommendation of Government of India.

(8) 15% of the total number of seats of each recognised veterinary college which is included in the First Schedule of the Act shall be reserved and filled on an all India basis through Common Entrance Examination and seats for the candidates belonging to Schedule Caste or Schedule Tribes or Physically handicapped or Other backward classes against said 15% quota of Veterinary Council of India shall be reserved to be filled up as per Government of India Policy.

(9) The candidates selected through this examination shall be admitted in various recognised veterinary colleges as per the eligibility criteria prescribed in these regulations only and the last date for reporting of these candidates to the allotted University or Veterinary Institution shall be 15th September of that year irrespective of the closing date of admission of that University or Veterinary Institution for that year, if earlier, the vacant seats may be filled by the veterinary college or university by 30th September which shall be the final cut-off date for the admission and thereafter no admission shall be made.

(10) A candidate shall not be allowed admission to Bachelor of Veterinary Science and Animal Husbandry degree course including those admitted under 15% reserved quota of Veterinary Council of India if he or she suffers the following disabilities, namely:-:

(a) disability of total body including disability of chestorspine more than 50%,

(b) disability of lower limb of more than 50%,

(c) disability of upper limb,

(d) visually handicapped candidates and those with hearing disability,

(e) candidates with progressive diseases like myopathies etc.

(f) disabilities which otherwise would interfere in the performance of the duties of a veterinarian.

(11) The disability shall be certified by a duly constituted and Government authorized Medical Board comprising of at least three specialists out of which two shall be of the specialty concerned and the candidate has to present him or her-self before the Medical Board and the last valid disability certificate of the candidate from a Medical Board shall not be more than three months old from the date of submitting his or her certificate for disabled candidates.

(12) After the final admissions, each Veterinary college shall submit the details of the students admitted in the first professional of BVSc and AH programme and similarly the list of students who pass out shall also be submitted to the Veterinary Council of India.

PART IV

VETERINARY CURRICULUM – STRUCTURING AND ORGANIZATION OF COURSE CURRICULUM

8. **Veterinary Curriculum – (1)** The following shall be the veterinary curriculum, namely:-

(a) (i) Core Courses; and

(ii) Internship including Enterpreneurial Training;

(b) the curriculum shall provide adequate emphasis on cultivating logical and scientific habits of thought, clarity of expression, independence of judgment, ability to collect information and to correlate them and develop habits of self-education;

(c) medium of instruction for B.V.Sc. and A.H. degree course shall be in English;

(d) practical training at Livestock Farm Complex or Clinical practice shall be organised in small groups of 5 to 10 students so that each teacher can give personal attention to each student with a view to improve his or her skill and competence in handling of the patients and each practical batch for a course shall be preferably not more than twnety students;

(e) efforts shall be made to encourage students to participate in group discussions and seminars to enable them to develop personality, character expression and other abilities which are necessary for a veterinary graduate to function either in solo practice or as a team member when he or she begins his or her independent professional career and an appropriate time slot for this activity be provided in the student study time table.

9. **Subjects to be covered in the Bachelor of Veterinary Science and Animal Husbandry Degree Course –** The following shall be the subjects for B.V.Sc. and A.H. degree course, namely:-

(a) Veterinary Anatomy,

(b) Veterinary Physiology,

(c) Veterinary Biochemistry,

(d) Veterinary Pharmacology and Toxicology,

(e) Veterinary Parasitology,

(f) Veterinary Microbiology,

(g) Veterinary Pathology,

(h) Veterinary Public Health and Epidemiology,

(i) Animal Nutrition,

(j) Animal Genetics and Breeding,

(k) Livestock Production Management,

(l) Livestock Products Technology,

(m) Veterinary Gynaecology and Obstetrics,

(n) Veterinary Surgery and Radiology,

(o) Veterinary Medicine,

(p) Veterinary and Animal Husbandry Extension Education,

(q) Veterinary Clinical Practices,

(r) Livestock Farm Practices.

10. **Migration or Transfer of Student – (1)** student studying in a recognised veterinary college which is included in the First Schedule of the Act may be allowed to migrate or be transferred to another recognised veterinary college under another or same University.

(2) The migration or transfer may be allowed by the university concerned after passing 1st year of Bachelor of Veterinary Science and Animal Husbandry degree course within one month of the start of academic session of 2nd year of the receiving College or University.

(3) The number of students migrating or transferring from one veterinary college to another veterinary college during the period of one academic year will be kept to the maximum limit of 5% of the intake capacity of each of the veterinary colleges in one year.

(4) The cases not covered under sub regulations, (1) to (3) may be referred to the Veterinary Council of India for consideration on merits.

(5) An intimation about the admission of migrated or transferred students into any veterinary college shall be sent to the Veterinary Council of India by the respective Institution.

11. **Syllabus. –** (1) The details of syllabus comprising of 81 credits (equivalent to 179 credit hrs. as per semester system) are the minimum requirement for a programme leading to Bachelor of Veterinary Science and Animal Husbandry degree and the summary of the distribution of courses shall be as follows:-

Professional Year	Theory	Practical	Total
First (one year)	12	6	18
Second (one year)	15	7	22
Third (one year)	15	9	24
Fourth (one and a half year)	8	9	17
	50	31	81

(equivalent to 179 credit hrs. as per semester system)

(2) In addition to the Core Courses above, a student shall have to successfully complete the Internship including Enterpreneurial Training as has been specified in sub-regulation (1) of regulation 8 for the award of Bachelor of Veterinary Science and Animal Husbandry degree.

(3) Remount Veterinary Squadron or National Cadet Crop or Equestrian or National Social Service or Sports and games shall be non- credit (0+1) training programmes any of which for all the Professional Years shall be compulsory (except fourth) for the award of Bachelor of Veterinary Science and Animal Husbandry degree and the performance of the students in these training programmes shall be assessed and graded as 'Satisfactory' or 'Unsatisfactory' and student has to obtain 'Satisfactory' grading for successful completion of course requirements.

(4) The Syllabus prescribed in regulation 11is the minimum instructional syllabus and is illustrative of the course content for teaching different courses at the veterinary colleges in the country for Bachelor of Veterinary Science and Animal Husbandry degree programme:

Provided that there is scope for flexibility of addition of topics or courses in the programme as per need or regional or institutional demand from time to time and such changes shall be non-violative and commensurate to the basic structure, curriculum and infrastructure prescribed in these regulations.

12. **Internship. – (1)** Every student of Bachelor of Veterinary Science and Animal Husbandry degree course shall be required after passing the fourth professional examination to undergo compulsory rotating internship to the satisfaction of the University for a minimum period of twelve calendar months so as to be eligible for the award of the degree of Bachelor of Veterinary Science and Animal Husbandry and full registration with the council.

(2) Compulsory rotating internship shall include a full time training in veterinary and animal husbandry services (including emergencies and night duties, Sundays and holidays) and the intern shll devote whole time to the training and shall not be allowed to accept a whole time or part time appointment paid or otherwise.

(3) Internship shall be undertaken only after completion of all credit requirements of veterinary curriculum including Remount Veterinary Squadron or National Cadet Crop or Equestrian or National Social Service or Sports and games as applicable under these regulations.

(4) The university shall issue a provisional course completion certificate of having passed all the professional examinations and having successfully completed prescribed course work.

(5) The State or Union territory Veterinary Council shall grant provisional registration to the candidate on production of provisional Bachelor of Veterinary Science and Animal Husbandry course completion certificate and the provisional registration shall be valid for a minimum period of twelve months and maximum of sixteen months.

(6) After provisional registration with the State or Union Territory Veterinary Council, the candidate shall register for internship of twelve calendar months.

(7) Interns shall be actively involved in rendering veterinary service under the supervision of an experienced teacher.

(8) The intern shall assist the teacher or incharge in all activities of the units they are posted in.

(9) During the period of internship the intern shall be provided accommodation or lodging and paid consolidated remuneration in the form of internship allowance as may be decided by the University or Institution from time to time.

(10) The intern shall be entitled for fifteen days casual leave and the leave cannot be claimed as a matter of right until and unless the sanctioning authority sanctions it and an intern willfully absents from the training programme even if for part of a day or during off hours duty (including Sundays and holidays) he or she may be treated absent for that day and the candidate shall be required to undergo training for the additional days in lieu of the absence period and internship allowance shall not be paid for these additional days.

(11) The internship programme shall be monitored by a Committee constituted by the Dean and the Committee shall comprise of Dean or Representative or nominee of the Vice Chancellor, incharge of Veterinary Clinical Complex, incharge of Livestock Farm Complex and Associate Professor (Internship) as members and this Committee shall monitor effective implementation of the internship training programme from time to time and shall be required to inspect the internship programme at different intervals of time randomly.

(12) In case of unsatisfactory work or performance or shortage of attendance or both the period of compulsory rotating internship shall be extended by two months and the student shall be reevaluated, if again found unsatisfactory or is unable to secure 50 marks, he shall be given one more chance after another two months and if he still is found unsatisfactory due to any reason, the intern has to re-register afresh for internship programme for entire twelve calendar months including registration with the State or Union Territory Veterinary Council.

(13) Internship allowance shall be paid only for twelve calendar months and no internship allowance shall be paid for the period of absence or unsatisfactory performance or extended period or re-registration period.

(14) The compulsory rotating internship shall be in the following areas, namely:-

(i) posting in Veterinary Clinical Complex for Clinical training covering veterinary medicine, surgery and radiology, gynaecology and obstetrics, clinical emergencies, indoor ward care, lab diagnosis, ambulatory, hospital management, record keeping etc;

(ii) posting at Veterinary Clinical Complex of veterinary college of other state in India with provision of rent free accommodation;

(iii) posting in any four of Zoo or wild life centre or eNational Parks, Meat Plant or Abattoirs, Milk Plants, Poultry Farms, Field Hospital, Animal Welfare Organization, Vaccine Institute, Remount Veterinary Corps, Pharmaceutical, Feed Industry for hands on training in each establishment;

(iv) entrepreneurial training and management covering farm routines of cattle and buffalo farms, piggery or rabbitary, sheep and goat farms, and equine or camel unit etc. Poultry production and management covering layer and broiler production, hatchery and chick management and learning farm practices like record keeping and other related activities;

(v) each intern shall submit a Project Report on completion of entrepreneurial training and this training is aimed at developing entrepreneurial skill for self-employment and the university or college shall provide interest free loans, technical support and infrastructure for these activities. Inputs, day-to-day work and financial accounting shall be undertaken by the students;

(vi) the profits, if any, shall be kept by the students, provided, in case of loss, the Dean of the college through the Entrepreneurial Committee consisting of four faculty members (at least one subject matter specialist) may evaluate the reasons of such loss and provide compensation in case it is found that the loss has been inadvertent;

(vii) the Incharge or nominee of each posting shall regulate the training of such interns and submit the evaluation report of each intern out of 20 marks which shall be accounted at the time of final evaluation;

(viii) the remaining days shall be utilised for the final assessment of interns as prescribed in these regulation, with the objective of having achieved following core competency namely:-

(a) restraint of cow, sheep, horse, dog and pig. Haltering, snaring, muzzling, tail switch, bandaging of horse for exercise and stable bandaging;

(b) animal identification, dentition and ageing of animals;

(c) housing layout or requirements of livestock and poultry;

(d) computation of ration of livestock of different breeds and age groups in health and disease;

(e) fodder management and interpretation of feed quality evaluation;

(f) physical evaluation of livestock health parameters (auscultation, percussion, recording of temperature, pulse, heart rate, respiration rate etc.);

(g) recording and interpretation of cardiovascular response;

(h) testing of milk and milk products for quality, clean milk production;

(i) carcass quality evaluation (ante-mortem & post-mortem examination);

(j) specific diagnostic tests for zoonotic diseases;

(k) sample collection, handling and dispatch of biological materials for laboratory examination;

(l) staining techniques for routine clinico-pathological examinations;

(m) relating post-mortem lesions to major livestock diseases;

(n) haematological evaluation (total leukocyte count, differential leukocyte count, haemoglobin, packed cell volume, erythrocyte sedimentation rate etc.) and interpretation;

(o) tests and their interpretation for haemoprotozoan diseases;

(p) body fluids collection, examination and interpretation as an aid to diagnosis;

(q) urine evaluation procedures and interpretation as indicators for diagnosis of diseases;

(r) fecal examination- procedures and interpretation;

(s) examination of skin scrapings and interpretation;

(t) interpretation of blood chemistry profile in diseases;

(u) deworming procedures and doses for different species of animals or birds;

(v) managing an outbreak of infectious or contagious disease;

(w) approach to diagnosis of a given disease condition;

(x) pre-anesthetic administration and induction, maintenance of general anaesthesia and dealing with anesthetic emergencies;

(y) local anaesthetic administration;

(z) nerve blocks- sites, functional application;

(za) suture material, suture pattern and tying knots;

(zb) common surgical procedures including dehorning, docking, caesarian section, ovariohysterectomy, castration, rumenotomy;

(zc) application of plaster castorsplint for fracture immobilization and other bandaging procedure in large and small animals;

(zd) soundness in horses;

(ze) rectal examination–palpation of pelvic or abdominal organs in cattle or horses or buffaloes,

(zf) detection of oestrus, artificial insemination, pregnancy diagnosis;

(zg) management of vaginal or uterine prolapse and dystocia;

(zh) andrological examination of bull, handling, preservation and evaluation of semen;

(zi) vaccination procedures , vaccination schedules and vaccine types for different diseases;

(zj) handling of radiograph, interpretation of a given radiograph of large and small animals;

(zk) client management;

(zl) managing a clinical practice, ambulatory van, transporting a sick animal requirements, etc.;

(zm) dosage regimens of important drugs;

(zn) drug administration techniques in different species of animals-oral, parenteral, rectal, intra-peritoneal and intra-uterine;

(zo) identification of major livestock or poultry breeds;

(zp) measuring climatic parameters and their interpretation;

(zq) communication technology tools.

(15) Details of day to day work, posting and duration needs to be worked out by the Veterinary Institution as per its needs and infrastructure facilities and the activities of interns shall be regulated by an Associate Professor (Internship) posted in Veterinary Clinical Complex and Assistant Professor (Internship and Entrepreneuralship) Livestock Farm Complex.

(16) The intern shall have the following functions, responsibilities and duties namely:-

(i) participation with clinical faculty in the hospital practice;

(ii) to Share the emergency and night duties on rotation in the large and small animal hospitals including Sundays and holidays;

(iii) participation with staff of the place of posting in Veterinary Practice, Production or Technology;

(iv) hands-on diagnostic and treatment procedures for hospitalized cases under the supervision of the attending veterinarian;

(v) to administer primary care to emergency cases and participate in service such as anesthesia, radiology, ultrasonography, endoscopy, laboratory and diagnostic procedures. Medicine, Gynaecology and Surgery rounds are held periodically allowing the interns to present cases and participate in topic discussion.

(17) The training shall be supplemented by fortnightly sessions of clinical conference, farm operation and data analysis, preparation of feasibility reports, project report, campaigns or discussions in clinical training, farm training and technology.

(18) The intern shall maintain a log book of day to day work which shall be verified and certified by the supervisor under whom he or she works and in addition, the interns shall prepare a brief project report on the basis of his or her case study or case analysis, survey reports etc. and shall be based on his or her own study during the internship and such reports be supervised by more than one teacher, if required and the interns shall present such report in seminar organised for the purpose.

(19) The assessment of each intern shall be based upon the evaluation of log book or project report, his or her performance reports from all the minimum prescribed training postings, entrepreneurial output, clinical case reports and their presentation, viva and comprehensive examination in core competence in veterinary skills through a written test by an Evaluation Committee comprising of the faculty representing the concerned departments appointed by the Dean for this purpose and the distribution of marks for various components of assessment shall be as under, namely:-

Log book or Project Report:	10 marks
Performance in different postings:	20 marks
Entrepreneurial output:	20 marks
Case Reports or Presentation:	10 marks
Written test:	30 marks
Viva :	10 marks
Total:	100 marks

(20) The minimum pass marks in internship assessment shall be 50 out of 100.

(21) After successful completion of Internship, the Dean shall then issue the certificate of satisfactory completion of internship training as prescribed by the Veterinary Council of India.

(22) A candidate shall become eligible for registration with State or Union Territory Veterinary Council only on the award of the B.V.Sc and A.H. degree or production of a provisional degree certificate by the University.

13. **Examination and Evaluation. –** (1) It shall be the responsibility of the teacher(s) or instructor(s) to ensure that the topics to be covered in the theory and practical in each course shall be recorded through a lecture or practical schedule and distributed to the students at the beginning of each course and the Head of the Department or Dean shall ensure that the schedule is adhered to and alternate arrangements are made to cover up the loss in case of any eventualities of unavoidable reasons that lead to non-adherence of the above schedule.

(2) Work distribution chart of each teacher shall be available with Dean's office for inspection of the Council and in each subject, professors and senior teachers shall be actively involved in teaching, especially in conducting practical for degree course.

(3) The examination shall be to assess whether the student has been able to achieve a level of competence and for academic assessment, evaluation of practical aspects of the curriculum shall receive much greater emphasis leading to separate examinations and requiring the student to secure a minimum of 50% marks, in theory as well as in practical, in each such examination.

(4) The weightage of theory and practical shall be in the ratio of 60:40 respectively.

(5) The distribution of marks for objective and subjective questions in each subject shall be in the ratio of 40:60 respectively in annual examinations provided the format of question paper in internal assessment shall be as per the choice of instructor(s).

(6) The schedule of examination during Bachelor of Veterinary Science and Animal Husbandry course shall consist of internal assessment and annual examinations as detailed below, namely:-

Internal Assessment First Second Third	Course coverage 30% 60% 90%	 Max. Marks 40 Max. Marks 40 Max. Marks 40	 Weightage 10 Weightage 10 Weightage 10
Annual examination (Theory)	Paper-I Paper-II	Max. Marks 100 Max. Marks 100	Weightage 20 Weightage 20
Annual examination (Practical)	Paper-I Paper-II	Max. Marks 60 Max. Marks 60	Weightage 20 Weightage 20

(7) There shall be four professional examinations- one each after 1st, 2nd, and 3rd year, and the fourth after one and half year and these professional examinations shall have only the theory component with external system and the practical component shall be dealt with internally.

(8) The examination for Livestock Farm Complex and Veterinary Clinical Complex shall be conducted twice a year i.e. first practical exam after completion of 50% syllabus and the second one, when the course is completed but the second exam shall comprise of entire syllabus and annual professional examination shall be held after the completion of 100% course content in each subject and the result of the best of two internal assessments shall be accounted for.

(9) The evaluation of answer books of internal examinations shall be done by the concerned teacher(s) whereas evaluation of answer books of annual theory examinations shall be done by the external examiner(s).

(10) The practical examinations shall be conducted by a Board of Examiners consisting of concerned Head of the Department, teacher(s) and a representative of the Dean and the teachers while evaluating practical, shall take into account the followings, namely:-

(i) a record or log book maintained by each student as practical records;

(ii) written test or observation and recording of the skill with which each student executes the practical;

(iii) assessment of the comprehensive skill and knowledge of each student through an oral examination (viva-voce).

(11) The answer-books of internal assessment shall be shown to students and the records of internal assessment as well as that of annual practical examination shall be submitted to Controller of Examination.

(12) The practical manuals shall be prepared by the respective departments for each subject.

(13) The duration of internal assessment shall be atleast one hour whereas the duration of annual theory examination shall be three hours and one month prior to the commencement of annual examinations the best of two internal assessment marks shall be submitted by the instructor through the Head to the Controller of Examinations or Registrar.

(14) The annual theory examination(s) shall be conducted by inviting the question paper from appointed paper setter(s) and a paper setter shall be provided the courses and syllabus prescribed by the Veterinary Council of India including detailed course outline and the paper setter shall be requested to prepare two sets of question subjects, each for main examination and compartment examination (if any).

(15) The internal assessment shall be conducted by the concerned instructor(s) during free period without affecting the teaching schedule provided the annual examinations shall be held on such dates, time and places as the university may determine and shall be completed in time so that the results are announced before the onset of the ensuing academic year.

(16) The schedule of annual examinations shall be adhered to strictly and no re-examination shall be allowed in events of students' strike, boycott, walkouts, medical grounds or what-so-ever may be the reason.

(17) The compartment examination shall be conducted within twenty calendar days of subsequent year registration:

Provided that a candidate may be allowed to provisionally sit in the next class provided he or she has failed only in two subjects and cannot be promoted to next Bachelor of Veterinary Science and Animal Husbandry class unless he or she has cleared the failed subject(s).

(18) The records of examination shall be made available to the Council, as and when required and the records of assessment may be retained till six months after the conduct of the annual examination.

14. **Teachers, Examiners, Paper Setters. – (1)** The persons with only basic veterinary qualification, included in Schedules to the Act, registered with a State Veterinary Council and having a Post-graduate Degree in the concerned subject, shall be recruited as teaching faculty in the Veterinary Colleges and preference shall be given to the candidates who have qualified National Eligibility Test conducted by

Agricultural Scientist Recruitment Board and in case National Eligibility Test qualified candidates are not available they shall qualify National Eligibility Test prior to their promotion and the College or University may employ Graduate Assistants with BVSc and AH or MVSc degree against the vacant post for a maximum period of two years and not more than one in each department.

(2) The post of Dean and Head of Department in a Veterinary College shall be filled up only with a teacher with basic veterinary qualification and the teaching staff in a veterinary college shall be whole-time teacher and shall be entitled for Non-Practicing Allowance (NPA).

(3) A person possessing qualification included in the First or Second Schedule to the Act shall be generally appointed as examiner or paper setter for the conduct of a professional examination for the Bachelor of Veterinary Science and Animal Husbandry course:

Provided that a person without the qualifications mentioned above may also be appointed examiner in his or her concerned subject provided he or she possesses the doctorate degree in that subject and a minimum three years under graduate teaching experience.

Provided, further that -

(a) no such person shall be appointed as an external examiner unless he or she has at least three year's teaching experience;

(b) no person below the rank of Lecturer or Assistant Professor or equivalent shall be appointed as internal examiner;

(c) no person shall be appointed as an external examiner in any para clinical or clinical subject unless he or she possesses a recognised veterinary qualification and holds a postgraduate degree and teaching experience in the subject concerned.

(d) persons working in Government or Semi Government or similar organisations may also be considered for appointment as external examiners provided they possess qualification and experience as laid down above.

(e) local person(s) shall normally not be appointed as paper setter(s) or external examiner(s), provided, under exceptional circumstances or unavoidable exigencies arising at the time of examination (like not arrival of appointed examiner or non-receipt of question paper from paper setter etc.), the University may appoint any qualified person for the purpose to avoid postponement or cancellation of annual board examination.

15. **Attendance. –** (1) The required condition of attendance shall not be deemed to have been satisfied in respect of the subject, unless the student has ordinarily attended all the scheduled theory and practical classes, provided, the minimum requirement of attendance shall not be less than 75% of scheduled theory and practical separately with relaxation of twenty working days for NCC or NSS, Co-curricular activities and medical ground and for the course of 0+1 credit, the relaxation shall be of only seven days.

(2) A candidate having attendance below 75% in a subject shall not be eligible to appear in the annual examination of that subject.

(3) The percentage of attendance of a student in a subject shall be computed on the basis of the total number of theory and practical classes scheduled between the date of commencement of instructions and date of closing of instructions irrespective of the date of registration, provided, for the students who are reverted back owing to failure in the compartment examination, the attendance shall be counted from the date of declaration of result of compartment examination and the date of closing of instructions and the attendance for the First year shall be counted from the date of registration.

16. **Promotion. –** (1) Promotion of a student in a professional year shall be decided only on the basis of aggregate marks of internal assessment and annual examinations.

(2) A student shall be promoted to next higher professional class only if he or she has passed in all the subjects of his or her class by obtaining at least 50% marks in theory (internal and external combined) and practical separately.

(3) A student should secure OGPA of 5.00 out of 10.00 at the end of degree programme to be eligible to get Bachelor of Veterinary Science and Animal Husbandry degree.

(4) A student may also be allowed provisional promotion to next higher class till the declaration of the result of the compartment examination, provided the provisional promotion shall be subject to clearance in the compartment examination of that or those subject(s) and shall be provisional and if the student fails in the compartment examination, he or she shall stand automatically reverted to the class from where he or she was allowed provisional promotion.

(5) Failed students shall register again for the entire professional class they failed and such students shall have to fulfill all requirements of the class afresh.

(6) A student failing in the annual examination for three consecutive years in a professional year of Bachelor of Veterinary Science and Animal Husbandry degree programme shall be finally dropped automatically from the University on account of poor academic performance (except fourth professional year).

(7) In no case, a student shall be allowed to continue his or her Bachelor of Veterinary Science and Animal Husbandry studies beyond Nine academic years (excluding Internship) in a Veterinary College.

17. **Compartmental examination. –** (1) A student failing in a maximum of two subjects only may be allowed to appear in compartment examination for those subject(s) and the compartment examination shall comprise of the annual component of both the theory and practical of the failed subject(s) which shall constitute 40 and 40 per cent weightage, respectively, and the marks obtained in internal assessment of theory shall be considered for the evaluation of compartment examination.

(2) The compartmental examination shall be conducted within twenty calendar days of subsequent year registration and if the student fails in the compartmental examination, he or she shall be reverted back to the original class and the results of such compartment examination shall be declared within ten days after the examination is conducted.

18. **Scrutiny of answer papers and rectification of errors. –** (1) There shall be a provision of scrutiny of answer book(s).

(2) A student, however, may be allowed to get his or her theory answer book(s) scrutinised, for which, the student shall have to apply to Controller of Examination or Coordinator of examination within three days after the declaration of result and after paying prescribed fee.

(3) The Controller or Coordinator (Examination) shall arrange the scrutiny of answer book(s) by the Screening Committee to be constituted by the Dean.

(4) The scrutiny shall be for re-totaling of the marks, and evaluation of unmarked question(s), if any.

(5) In case, the total marks are found to be incorrect on scrutiny, the same shall be corrected and the result shall be revised accordingly (even if it is towards lower side) and if, any question is found to be unchecked by the examiner, the answer book(s) shall be sent to the Examiner for doing the needful and the result(s) shall be revised accordingly if there occurs any change in the marks.

(6) No representation by the student(s) shall be entertained regarding the outcome of the result after scrutiny.

(7) In case a student on the basis of the result of scrutiny becomes eligible for the compartmental examination, he or she may apply to the concerned authority to appear in the compartment examination on the announced scheduled date and the scheduled date of the compartment examination shall under no circumstances be changed on this account.

(8) The Controller or Coordinator of Examination in consultation with the Dean of the College shall form Committee of three members consisting of Dean of the College as Chairman and two other teaching faculty members to moderate the results obtained at the annual board examination and the Committee shall review the results and recommend the moderation in the event of failure of more than 10% of the student actually appearing in that particular subject and any moderation suggested shall be uniformly applied to all students for that paper (s) without altering the merit of the passed candidates.

(9) Any moderation effected should not involve of enhancing of more than total of 5 marks in a professional year for a particular candidate, and in no case more than 3 marks in one subject and the provisions for

moderation of results shall not apply to Compartment Examinations and there shall be no provision for grace marks in any case.

19. **Grading.** – (1) Grade Point in a subject shall be the total marks obtained by a student out of 100 divided by 10

(2) Credit Pont in a subject shall be Grade Point multiplied by the credit hours.

(3) Total Credit Points shall be the sum of the credit points secured.

(4) Grade Point Average shall be the sum of the total credit points earned divided by the sum of credit hours.

(5) Overall Grade Point Average shall be the sum of the grand total of credit points earned divided by the grand sum of credit hours.

(6) The corresponding ranking of Overall Grade Point Average with respect to traditional scoring system of division ranking shall be as follows, namely:-

8.000 and above	-	First Division with Distinction
7.000 -7.999	-	First Division
6.000 - 6.999	-	Second Division
5.000 - 5.999	-	Pass

(7) The formats of detailed mark certificate and degree transcript are annexed at **Annexure I and II** to these regulation**.**

PART V

COURSES AND COURSE CONTENTS

20. **PROFESSIONAL YEARWISE DISTRIBUTION OF COURSES**

(1) FIRST PROFESSIONAL

Veterinary Anatomy	4+3=7
Veterinary Physiology	4+1=5
Veterinary Biochemistry	2+1=3
Livestock Production Management	4+2=6
	Total 14+7=21

(2) SECOND PROFESSIONAL

Veterinary Microbiology	3+2=5
Veterinary Pathology	4+2=6
Animal Genetics and Breeding	3+1=4
Animal Nutrition	3+1=4
	Total 13+6=19

(3) THIRD PROFESSIONAL

Veterinary Pharmacology and Toxicology	4+1=5
Veterinary Public Health and Epidemiology	3+1=4
Veterinary Parasitology	3+2=5
Livestock Products Technology	2+1=3
Veterinary and Animal Husbandry Extension Education	3+1=4
Veterinary Clinical Practices – I	0+1=1
Livestock Farm Practices	0+2=2
	Total 15+9=24

(4) FOURTH PROFESSIONAL

Veterinary Surgery and Radiology	2+1=3
Veterinary Medicine	4+1=5
Veterinary Gynaecology and Obstetrics	2+1=3
Veterinary Clinical Practices –II	0+6=6
	Total 8+9=17

21. **COURSE CONTENTS**

(1) GENERAL REMARKS

Alternate use of animals as model for demonstration shall be encouraged and the computer simulations, Interactive CD-Rom, films, charts and life like models shall be used for better understanding of the subject and the programme to obtain cadavers ethically be established at all veterinary colleges.

(2) DEPARTMENT-WISE DESCRIPTION

(i) **DEPARTMENT OF VETERINARY ANATOMY**

VETERINARY ANATOMY **Credit Hours: 4+3**

Dissection will be carried out on cadavers procured by way of donation of animals or animals obtained from post-mortem section and the donated animals should be either incurable or in terminal stages and prossected specimens should be used.

Within one year each college must setup a body donation programme or wild body programme.

Computer simulations software's, models, mannequins, plastinated specimens, preserved body organs, models should be used for better understanding of the subject.

THEORY

UNIT: 1

Introduction to anatomy and branches of anatomy and descriptive terms used in anatomy and study of anatomical planes.

General Osteology, Arthrology and Myology: Study of properties and structure of bone. Classification of skeletons, classification of bones with suitable examples and terms used in osteology Introduction to arthrology, classification of joints, different diarthrodial joints, structure of diarthrodial joints and movements permitted. Introduction to myology, classification of muscles, etymology of muscles. Description of tendon, ligaments, aponeurosis, synovial bursa and synovial sheath.

(Note: Detailed description of muscles of different regions of the body will be studied in the respective practical).

General Angiology, Neurology and Aesthesiology: Introduction to angiology. Structure of heart. General plan of systemic and pulmonary circulations, lymphatic and venous systems. Introduction to neurology and parts of central, peripheral and autonomic nervous system and sense organs. Formation of spinal nerve. Structure of meninges, brain, spinal cord.

Different surface regions, joint regions, Palpable Bony areas or prominences of the body of the animal. Palpable Lymph nodes and Arteries of the body and Surface veins for Venepuncture. Sites for collection of Bone marrow and Cerebrospinal fluid.

General Splanchnology: Introduction to splanchnology, boundaries of thoracic, abdominal and pelvic cavities, topography of different organs of digestive, respiratory, urinary, endocrine, male and female reproductive systems of domestic animals and fowl.

Principles and application of Radiography and Ultrasound for bones and soft tissues.

UNIT-2

Fore limb: Study of bones of fore limb of ox and differences in horse, dog, pig and fowl. Study of hoof of ox and horse. Study of joints, ligaments, stay apparatus, major blood vessels, nerves, veins and lymph nodes of fore limb. Sites for Radial, Median, Ulnar and Volar nerve blocks.

UNIT-3

Head and neck: Study of cranial and facial bones, cervical vertebrae of ox and differences in horse, dog, pig and fowl. Boundaries of the oral, orbital, nasal and cranial cavities. Study of paranasal sinuses in ox, horse, dog and pig. Study of articulations and special ligaments of the head and neck. Muscles of face, mastication, eye, ear, tongue, pharynx, soft

palate ,hyoid and larynx. Study of teeth, hard and soft palate, tongue, pharynx, larynx, thyroid, parathyroid and salivary glands and differences in horse, dog, pig and fowl. Study of cranial nerves, blood vessels and lymph nodes of head and neck regions. Study of boundaries of jugular furrow and structures of carotid sheath along with neck muscles. Study of sense organs, trachea and oesophagus. Age determination by Dentition. Sites for Tracheotomy, Esophagotomy, Ligation of Stensons duct and Mental, Mandibular, Maxillary , Cornual, Infraorabital , Supraorbital (frontal) , Orbital and Auriculopalpebral nerve blocks and surgical approach to guttural pouches in horse. Importance of Cornual nerve and superficial Temporal artery in Amputation of Horn in cattle.

UNIT-4

Thorax: Study of thoracic vertebrae, ribs and sternum of ox and differences in horse, dog, pig and fowl. Study of joints, special ligaments, blood vessels, nerves, lymph vessels and lymph nodes of thorax. Study of organs of thorax i.e. trachea, thymus, oesophagus, lungs and differences in horse, dog, pig and fowl. Study of pleura, its reflections and mediastinum. Areas of auscultation and percussion of heart and lungs and site for Paracentesis Thoracis.

UNIT-5

Abdomen: Study of bones of abdomen of ox and differences in horse, dog, pig and fowl. Study of joints, special ligaments blood vessels, nerves of abdomen region. Blood and nerve supply to abdominal viscera. Study of peritoneal reflections, organs of digestive, urinary, male and female reproductive systems present in abdomen and differences in horse, dog, pig and fowl. Study of mammary glands in cow and differences in mare, bitch and sow. Study of spleen of ox and differences in horse, dog, pig and fowl. Study of major veins, lymph vessels, lymph nodes and endocrine glands of abdomen. Boundaries and Clinical importance of the flank and Para Lumbar Fossa. Sites for Liver ,Gall Bladder and Caecal Biopsies, Laparotomy,Rumenocentesis ,Rumenotomy,abomasotomy, spleenectomy, Cystotomy , Caesarean Operation , enterotomy, and paravertebral block .

UNIT-6

Hind limb and pelvis: Study of bones of hind limb and pelvis of ox and differences in horse, dog, pig and fowl. Study of joints, ligaments, blood vessels, lymph nodes and nerves of hind limb, pelvis and tail region and pelvic viscera. Study of pelvic peritoneal reflections, organs of digestive, urinary, male and female reproductive systems present in pelvic cavity and differences in horse, dog, pig and fowl. Boundaries of the inguinal canal and structures of the spermatic cord, pre pubic tendon and its importance. Study of external genital organs. Sites for Tibial , Peroneal ,Plantar and Pudic nerve blocks, Patellar desmotomy, Urethrotomy, Castration , Vasectomy, cranial and caudal epidural anaesthesia.

UNIT-7

Cytology, cell junctions, study of basic tissues i.e epithelial, connective, muscular and nervous tissues, blood and bone marrow. Study of microscopic structures of digestive, circulatory, urinary, respiratory, nervous, lymphatic, endocrine, male and female genital systems and mammary glands of domestic animals. Study of microscopic structure of sense organs i.e. eye, ear and integument.

UNIT-8

Introduction to embryology, gametogenesis, fertilization, cleavage, types of eggs, morula, blastulation, gastrulation, types of implantation, twinning. Formation of foetal membranes in mammals and birds, Placenta and its classification. Different germ layers and their derivatives. Study of development of organs of digestive system including accessory structures i.e tongue, teeth, salivary glands, liver and pancreas. Study of development of organs of respiratory, urinary, circulatory, lymphatic, nervous, musculoskeletal, male and female reproductive systems. Development of endocrine glands, sense organs i.e eye and ear.

PRACTICAL

UNIT-1

Study of general terms used in anatomy, study of anatomical planes. Study of different parts of skeleton, different surface and joint regions. Study of boundaries of thoracic, abdominal and pelvic cavities. Demonstration of different types of joints, muscles tendons, ligaments, synovial bursa and synovial sheath. In situ demonstration of heart, meninges, brain and spinal cord. Boundaries of Thoracic, Abdominal and Pelvic Cavities and in situ demonstration of organs of digestive, respiratory, urinary, endocrine, male and female reproductive systems of domestic animals.

Demonstration of Different surface regions, joint regions and Palpable Bony areas or prominences of the body of the animal , Common sites of fractures, Palpable Lymph nodes and Arteries of the body (ventral coccygeal artery in ox, femoral artery in dog and cat , facial artery in horse) and Surface veins for Venepuncture(cephalic vein and recurrent tarsal vein in dog and cat , jugular vein in large animals.) and Sites for collection of Bone marrow and Cerebrospinal fluid. Visualization of Radiographs and ultrasound pictures of various organs and Fractures of various bones.

UNIT-2

Fore limb: Demonstration of different bones of fore limb of ox and comparison with horse, dog, pig and fowl. Dissection of the fore limb. Study of joints, ligaments, muscles, major blood vessels, lymph nodes and nerves of fore limb. Study of sites for different nerves blocksorneurectomies in fore-limb. Study of suprascapular nerve paralysis-shoulder sweeny, radial nerve paralysis-capped elbow. Structure of the equine hoof and comparison with ox. Demonstration of radiographs of normal bones of fore limb. Clinical importance of cephalic vein for intravenous injections in dog.

UNIT-3

Head and neck: Demonstration of cranial and facial bones, cervical vertebrae of ox and comparison with horse, dog and fowl. Dissection of muscles of face, mastication, tongue, pharynx, soft palate, hyoid, larynx, eye and ear. Dissection of superficial neck muscles. Dissection of brain and its parts. Dissectionordemonstration of tunics of eye. Study of teeth, tongue, pharynx, thyroid, parathyroid and salivary glands and differences in horse, dog, pig and fowl. Study of cranial nerves, and blood vessels of head and neck regions. Study of trachea and oesophagus. Study of nerve blocks of the head i.e cornual, auriculo-palpebral, Peterson's orbital nerve block, mandibulo-alveolar and mental nerve blocks. Importance of facial artery for recording pulse in horse. Surgical importance of Stenson's duct in domestic animals. Surgical approach to guttural pouches-Viborg's triangle. Clinical importance of jugular vein for intravenous injections in large animals. Demonstration of radiographs of normal bones of head and neck.

UNIT-4

Thorax: Demonstration of thoracic vertebrae, ribs and sternum of ox and comparison with horse, dog, pig and fowl. Dissection of muscles, blood vessels, nerves and lymph nodes of thorax. Demonstration of organs of thorax i.e. trachea, oesophagus, thymus, lungs and heart and differences in horse, dog, pig and fowl. Study of pleural reflections of thoracic cavity. Demonstration of sites for auscultation and percussion. Recurrent laryngeal nerve paralysis-roaring in horses. Choke or oesophageal obstruction. Demonstration of radiographs and videos of ultrasonography of organs of thorax.

UNIT-5

Abdomen: Demonstration of bones forming boundaries of abdomen of ox and comparison with horse, dog, pig and fowl. Dissection of muscles, blood vessels and nerves of abdomen. Demonstration of peritoneum, omentum, mesentry and organs of digestive, urinary, male and female reproductive systems present in abdomen and differences in horse, dog, pig and fowl. Demonstration of mammary glands of cow, mare, bitch and sow. Demonstration of major veins, lymph vessels and lymph nodes of abdomen. Topographic location of abdominal viscera of ox and comparison with horse, dog, pig and fowl. Demonstration of sites for laparotomy, caesarean section, ovario-hysterectomy, catheterization of urinary bladder and sites for paravertebral and epidural anaesthesia. Demonstration of Boundaries and Clinical importance of the flank and Para Lumbar Fossa,Sites for Liver ,Gall Bladder and Caecal Biopsies, Laparotomy,Rumenocentesis ,Rumenotomy,abomasotomy, spleenectomy Cystotomy , Caesarean Operation, catheterization of urinary bladder and enterotomy and paravertebral block . Demonstration of radiographs and videos of ultrasonography of organs of abdomen.

UNIT-6

Hind limb and pelvis: Demonstration of bones of hind limb of ox and comparison with horse, dog, pig and fowl. Demonstration of joints and ligaments of hind limb and pelvis. Dissection of muscles, blood vessels, lymph nodes and nerves of hind limb and pelvic cavity. Demonstration of peritoneal reflections of pelvic cavity and organs of digestive, urinary, male and female reproductive systems in pelvic cavity and differences in horse, dog, pig and fowl. Study of external genital organs. Clinical importance of femoral artery to record pulse in dog. Clinical importance of recurrent tarsal vein for intravenous injections in dog. Demonstration of radiographs of normal bones and videos of ultrasonography of organs of pelvis. Demonstration of Sites for Tibial ,Peroneal ,Plantar and Pudic nerve blocks, Patellar desmotomy, Urethrotomy, Castration , Vasectomy and cranial and caudal epidural anaesthesia.

UNIT-7

Microscopy and micrometry. Comparison of light and electron microscopy. Histological techniques, processing of tissues for paraffin sectioning and haematoxylin and eosin staining. Microscopic examination of epithelium, connective tissue, muscular tissue, nervous tissue and blood. Microscopic examination of organs of digestive, circulatory, urinary, respiratory, nervous, lymphatic, endocrine, male and female genital systems and sensory organs of domestic animals.

UNIT-8

Demonstration of Placenta, umbilical cord and foetal membranes of different domestic animals. Demonstration of congenital anomalies of domestic animals as per availability. Study of slides of developing organs of different systems as per the availability.

A embalmed cadaver of buffalo calf (procured through donated animals or cadevars obtained from post-mortem section) for every 24 students to be used for dissection purposes.

ANNUAL EXAMINATION

PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
THEORY			
Paper-I	1, 2, 3and 4	100	20
Paper-II	5,6,7 and 8	100	20
PRACTICAL			
Paper-I	1, 2, 3and 4	60	20
Paper-II	5,6,7 and 8	60	20

(ii) **DEPARTMENT OF VETERINARY PHYSIOLOGY AND BIOCHEMISTRY**

VETERINARY PHYSIOLOGY AND BIOCHEMISTRY **Credit Hours: 6+2**

VETERINARY PHYSIOLOGY Credit Hours: 4+1

VETERINARY BIOCHEMSITRY Credit Hours: 2+1

VETERINARY PHYSIOLOGY

THEORY

UNIT- 1 (BLOOD, CARDIOVASCULAR, NERVOUS AND MUSCULAR SYSTEMS)

Introduction to Blood; Properties of blood as a body fluid, metabolism and fate of R.B.C; Hemoglobin-chemical structure, synthesis, physiological functions, derivatives of hemoglobin;

Heart- morphological characteristic, systemic excitability conduction and transmission processes. Cardiac Cycle: Regulation of cardiac output; coronary circulation; properties of pulse; metabolism and energetic of working myocardial cell, extrinsic and intrinsic regulation; Electro Cardio Graph and its significance in Veterinary Sciences - Echocardiography. Haemorrhage haemostasis. Haemodynamics of circulation, circulatory mechanics, resistance to flow, vasoconstriction, nervous and circulating fluid volume controls of blood pressure, neurohormonal control of vascular smooth muscle. Circulatory controls- shock stresses, regional and fetal circulation. Capillary exchange, control of blood pressure. Adjustment of circulation during exercise.

Muscle Physiology-basic muscle unit characteristic-electrical phenomenon in muscle cell - muscle action potential, excitation and propagation of impulse characteristics- latent period refractive ness, threshold level-all and none characteristics - contractile mechanism - excitation - contraction coupling-neuro-muscular transmission, types of muscle contraction, phenomenon of fatigue, rigor mortis. Organization of nervous system- Mechanism of information processing, hierarchical control. Major function system- sensory, consciousness, emotion, motor and visceral control and basic functional unit - neuron structure, type- functional characteristics of sub-units of neuron. Membrane potential - ionic basis of resting membrane potential (RMP) nerve action potential, excitation and propagation of impulse characteristics- latent period- refractive-ness, threshold level-all and none characteristics. Degeneration and regeneration of nerve fibre. Synaptic and junctional transmission. Functions of nervous system-reflexes-control of posture and movements, autonomic nervous system and visceral control. Neurotransmitter wakefulness, sleep cycle. Higher function of neurons system - learning, memory, electroencephalography. Sense organs and receptors physiology of special senses - Eye: functional morphology, nourishment and protection neural pathway, receptors- optics, ocular muscles and movements, photochemistry, Vision defects Ear: Physiology of hearing and common hearing impairment. Vestibule apparatus. Physiology of olfaction and taste

UNIT-2 (DIGESTIVE AND RESPIRATORY SYSTEMS)

Morphological characteristic of mono gastric and poly gastric digestive system. Prehension, rumination; defecation; vomition; regulation of secretory function of saliva, stomach, intestine, pancreas; bile secretion; hunger, appetite control, developmental aspects of digestion; luminous, membranous and microbial digestion in rumen and intestine; permeability characteristics of intestine, forces governing absorption, control intestinal transport of electrolyte and water, enzymatic digestion in monogastric and fermentative digestion in rumen, modification of toxic substances in rumen. Digestion in birds.

Functional morphology of respiratory apparatus. Mechanics of breathing. Transport of blood gases, foetal and neonatal oxygen transport, dissociation curves, pressures, recoil tendency, elasticity, surfactants, pleural liquid, compliance, exchanges of gases in lungs and tissues, neural and chemical regulation of breathing, diffusion, perfusion, hypoxia. Frictional resistance to air flow, airways smooth muscle contraction, respiratory muscle work, panting, adaptation of respiration during muscle exercise, high altitude hypoxia, Non-respiratory lung functions. Respiration in birds.

UNIT-3 (EXCRETORY AND ENDOCRINE SYSTEMS)

Kidney- Functional morphology of nephrons, factors determining filtration pressure, determination of glomerular filtration rate (GFR) and renal plasma flow – Re-absorption mechanisms for glucose, protein, amino acids, electrolytes; ammonium mechanism, glomerulo-tubular balance, methods of studying renal functions; urine concentration; micturition, uremia. Fluid, water balance, fluid therapy, dehydration, water concentration mechanisms. Acid base balance and H+ regulation, correction and evolution of imbalances, total osmotic pressure. Formation and excretion of urine of Birds. Cerebrospinal fluid, synovial fluids - composition, formation and flow; Joints. Regulation of bone metabolism and homeostasis.

Hormone cell interaction, sub-cellular mechanisms-metabolism of hormones-methods of study of endocrine system; Receptors- mechanism of regulation; Chemistry of hypothalamo- hypophyseal hormones, target organ, pineal, thyroid, thymus, pancreas, adrenal, prostaglandins, hormones of calcium metabolism, disorders, rennin-angiotensin system, atrial natriuretic factors, erythropoietin, GI hormones, pheromones.

UNIT-4 (REPRODUCTION, LACTATION, GROWTH AND ENVIRONMENTAL PHYSIOLOGY)

Genetic and endocrine control of gonadal development, modification of gonadotrophin release, ovarian functions, follicular development, dynamics, endocrine and receptor profiles, sexual receptivity, ovarian cycle, post-partum ovarian activity, ovum transport, capacitation, fertilization, reproductive cycles in farm animals- hormones present in the biological fluids during pregnancy and their uses for the diagnosis of pregnancy- maternal foetal placental participation in pregnancy and parturition, immunology of gestation, preparturient endocrine status.

Spermatogenic cycle and wave- function of sertoli cell-leydig cell-semen - composition- evaluation; Testosterone - function and regulation - cryptorchidism. Puberty - photoperiod - uses of androgens, progestogens, estrogens.

Functional and metabolic organization of mammary glands - structure and development; effect of estrogens and progesterone; hormonal control of mammary growth; lactogenesis and galctogenesis; biosynthesis of milk constituents-secretion of milk, and metabolism, prolactin and lactation cycle.

Biochemical and genetic determinants of growth, regulation of growth, metabolic and hormone interactions, factors affecting efficiency of growth and production in ruminants and single stomach animals. Growth in meat producing animals and birds, growth curves. Recombinant gene transfer technologies for growth manipulation- advantages and limitations. Protein deposition in animals and poultry.

Heat balance, heat tolerance, hypothermia, hyperthermia, thermo-regulation in farm animals, role of skin, responses of animals to heat and cold, fever, body temperature and hibernation. Temperature regulation in birds.

Climatology- various parameters and their importance. Effect of different environmental variables like temperature, humidity, light, radiation, altitude on animal performance. Acclimation, acclimatization - general adaptive syndrome. Clinical aspects of endocrine - reproductive functions, circadian rhythm.

Neurophysiology of behaviours, types of behaviour, communication, Learning and memory behavioural plasticity.

PRACTICAL

UNIT- 1 (BLOOD, CARDIOVASCULAR, NERVOUS AND MUSCULAR SYSTEMS)

Collection of blood samples - Separation of serum and plasma - Preservation of de-fribrinated blood - enumeration of erythrocytes, leucocytes - differential leucocytic count - platelet count - estimation of hemoglobin - haematocrit - erythrocyte sedimentation rate - packed cell volume - coagulation time- bleeding time -Erythrocyte fragility and viscosity - blood grouping - recording of ECG - measurement of arterial blood pressure (Sphygmomanometry). Simulation experiments on Nerve- Muscle and heart physiology.

UNIT-2 (DIGESTIVE AND RESPIRATORY SYSTEMS)

Counting of rumen motility, estimation of volatile fatty acids and ammonia nitrogen in rumen liquor. Bacterial and protozoal count. *In-vitro* action of proteolytic enzymes- Amylase, pepsin and trypsin. Recording of respiration, spirometry. Recording of volume and capacities in different physiological states including determination of vital capacities.

UNIT-3 (EXCRETORY AND ENDOCRINE SYSTEMS)

Urine analysis-physiological constituents, pathological determinates, determination of Glomerular Filteration Rate. Titerable acidity, determination of inorganic phosphorus, urine ammonia nitrogen and creatinine in urine. Recording of rumenorintestinal movements (Demonstration) and Bio assay for tropic hormone. Demonstration of hormone estimation.

UNIT-4 (REPRODUCTION, LACTATION, GROWTH AND ENVIRONMENTAL PHYSIOLOGY)

Oestrus and phases of oestrous cycle in animals (vaginal mucus). Behavioural signs of oestrus. Sperm motility, sperm concentration -live and dead - abnormal sperm count. Measurement of growth in various species. Measuring surface area of animals. Health parameters of animals- body temperature, pulse, respiration and heart rate. Measurement of animal environmental conditions. Behaviour of animals- mating behavior, feeding behaviour (liveorvideo graphicorcomputer simulated demonstration).

ANNUAL EXAMINATION

PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
THEORY			
Paper-I	1and 2	100	20
Paper-II	3 and 4	100	20
PRACTICAL			
Paper-I	1and 2	60	20
Paper-II	3 and 4	60	20

VETERINARY BIOCHEMISTRY **Credit Hours: 2+1**

THEORY

UNIT-1 (GENERAL VETERINARY BIOCHEMISTRY)

Scope and Importance of Biochemistry. Structure of Biological Membranes and Transport across Membranes. Donnan Membrane Equilibrium. Dissociation of Acids, pH, Buffer Systems, Henderson-Hasselbalch Equation. Biochemistry of Carbohydrates: Biological Significance of Important Monosaccharides(Ribose, Glucose, Fructose, Galactose, Mannose and Amino Sugars), Disaccharides (Maltose, Isomaltose, Lactose, Sucrose and Cellobiose), Polysaccharides, (Starch, Dextrins, Dextrans, Glycogen, Cellulose, Inulin, Chitin), and Mucopolysaccharides Including Bacterial Cell Wall Polysaccharides. Biochemistry of lipids: Properties and biological significance of simple, compound and derived lipids and lipoproteins. Fat indices. Structure and functions of prostaglandins. Biochemistry of proteins: Classification, Structure, Properties - Biological significance of proteins. Amino acids: Structure and classification. Physical and chemical properties of amino acids - amphoteric nature, optical activity, and peptide bond formation. Biochemistry of nucleic acids: Chemistry of purines, pyrimidines, nucleosides and nucleotides. Biological significance of nucleosides and nucleotides. Structures and functions of deoxyribonucleic acid (DNA) and a typical ribonucleic acid (RNA).

UNIT-2 (INTERMEDIARY METABOLISM)

Enzymes: Definition and classification. Coenzymes, cofactors and iso-enzymes. Properties: Protein nature, enzyme-substrate complex formation, modern concept of the active center of enzyme. Specificity of enzyme action: Substrate specificity, group specificity, stereo or optical specificity. Factors influencing enzyme action: Effects of temperature, pH, concentration of substrate and enzyme. Enzyme units: International Units, katal, turnover number and specific activity. Enzyme inhibition: Competitive, non-competitive, uncompetitive inhibition and suicidal inhibition. Allosteric enzymes. Biological oxidation: Enzymes and coenzymes involved in oxidation and reduction. Respiratory chain or electron transport chain, oxidative phosphorylation, inhibitors, uncouplers and other factors influencing electron transport chain. Carbohydrate metabolism: Glycolysis, Kreb's cycle, HMP shunt, gluconeogenesis, Cori cycle, glycogenesis, glycogenolysis, Bioenergetics of carbohydrate metabolism. Lipid metabolism: Beta oxidation of fatty acids, ketone body formation, biosynthesis of fatty acids. Bioenergetics of lipid metabolism.

Protein metabolism: Biosynthesis and Degradation. Deamination, transamination and decarboxylation of amino acids. Ammonia transport and urea cycle. Nucleic acid metabolism: Metabolism of purines and pyrimidines. DNA and RNA biosynthesis and regulation. Regulation and Integration of metabolism.

UNIT- 3 (VETERINARY ANALYTICAL BIOCHEMISTRY)

Disorders of Carbohydrate Metabolism: Diabetes mellitus, Ketosis, Bovine Ketosis, Pregnancy toxemia, hypoglycaemia in baby pigs, hyperinsulinism in Dogs. Hormonal control of carbohydrate metabolism and regulation of blood sugar.

Biochemical tests for the detection of disturbance in carbohydrate metabolism. Plasma Proteins and clinical significance, Proteins and Dysproteinemias,. Acute Phase proteins. Lipid Profile in disease diagnosis. Clinical Enzymology - Diagnostic importance of non-functional plasma enzymes and Isoenzymes, Liver function tests - Classification - Biochemical tests for differential diagnosis. Biochemical tests of renal function - Urine analysis - Role of BUN, Uric acid and Creatinine in diagnosis. Disturbance in acid base balance and its diagnosis. Biochemistry of digestive disorders. Biochemistry of oxidative stress and shock. Biochemical basis of fluid therapy. Detoxification in the body: Metabolism of xenobiotics, General reactions for biotransformation of different groups of substances, Cytochrome p450 system of enzymes.

PRACTICAL

UNIT-1 (GENERAL VETERINARY BIOCHEMISTRY)

Concentration of solutions and system International (S.I.) Units; Preparationor standardization of acids and alkalies; Preparation of Buffers; Titration curve of acid versus base; Qualitative test for carbohydrates and identification of unknown carbohydrates; Determination of acid number of an oil; Color and precipitation reactions of proteins; Estimation of amino acids (Sorensen's Method).

UNIT-2 (INTERMEDIARY METABOLISM)

Effect of temperature and pH on enzyme activity; Estimation of blood or plasma Glucose, Protein, Inorganic phosphate, Calcium, Magnesium; Estimation of ascorbic acid by Dichlorophenolindophenol (DCPIP) method; Estimation of milk lactose by Benedicts quantative method; Estimation of sodium and potassium by flame photometer; Paper or thin later Chromatography of amino acids; Estimation of vitamin A by colorimetry.

UNIT-3 (VETERINARY ANALYTICAL BIOCHEMISTRY)

Detection of Pathological Constituents in Urine; Assays of ALT and AST in Serum; Acute phase proteins (AorG Ratio); Estimation of total serum cholesterol, Blood Urea Nitrogen, creatinine, serum billirubin (Direct, Indirect and Total).

Principles of various diagnostic tests, normal and abnormal values in different species, differential diagnosis, correlating with diseases and rationale of arriving at the conclusion need to be rediscussed in detail during Final Profesional in the course VETERINARY CLINICAL PRACTICES-II, Diagnostic Laboratory Section.

ANNUAL EXAMINATION

PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
THEORY			
Paper-I	1 and 3	100	20
Paper-II	2	100	20
PRACTICAL			
Paper-I	1and 3	60	20
Paper - II	21	60	20

(iii) **DEPARTMENT OF LIVESTOCK PRODUCTION MANAGEMENT**

LIVESTOCK PRODUCTION MANAGEMENT **Credit Hours: 4+2**

THEORY

UNIT-1 (GENERAL LIVESTOCK MANAGEMENT)

Demographic distribution of livestock and role in Indian economy. Problems and prospects of livestock industry in India. Common animal husbandry terms. (glossary) Body conformation and identification. Transportation of livestock and wild or zoo animals. Common farm management practices including disinfection, isolation, quarantine and disposal of carcass. Introduction to methods of drug administration. Common vices of animals (Cattle, Buffalo, Sheep, Goat,), their prevention and care. Livestock production systems. Animal holding and land holding patterns in different agro-climatic zones. Organic livestock production. Judging and BCS for body parts of livestock. Preparation of animals for show. Culling of animals. Selection and purchase of livestock.

UNIT-2 (FODDER PRODUCTION AND CONSERVATION)

Importance of grasslands and fodder in livestock production. Agronomical Practices for fodder production. Important leguminous and non-leguminous fodders in different seasons. Soil and Water conservation and drainage of water for fodder production. Fodder production for small livestock units. Structures for storage of feeds and fodders. Scarcity fodders and preservation of green fodder. Recycling of animal washings and wastes in fodders production and use of recycle waste.

UNIT-3 (LIVESTOCK PRODUCTION MANAGEMENT-RUMINANTS)

Housing systems, layout and design of different buildings for animals. Selection of site. General principles affecting the design and construction of building for housing for various livestock species. Arrangements of the building with special reference to Indian conditions. Utilization of local materials. Building materials used for construction of wall, roof and floor of animal houses, their characteristics, merits and demerits. Breeds of cattle and buffalo and descriptions of important breeds. Economic traits of cattle and buffaloes. General management and feeding practices of calves, heifers, pregnant, lactating and dry animals, bulls and working animals. Draught ability of cattle and buffaloes. Raising of buffalo males for meat production. Routine animal farm operations and labour management. Animal farm accounts and records. Methods of milking and precautions. Factors affecting quality and quantity of milk production. Clean milk production. Breeds of sheep and goat and their descriptions. Important economic traits for meat, milk and fibre. General management and feeding practices during different stages of growth, development and production (milk, meat and wool). Breeding schedule and management of ram and buck. Weaning and fattening of lambs and kids.

UNIT-4 (ZOO ANIMALS PRODUCTION MANAGEMENT)

Taxonomy of important wild zoo animals. Status and conservation practices of wild life in India. Basic principles of habitat and housing of various classes of wild zoo animals. Size and space requirement (dimension) of cubicles, enclosures of important wild zoo animals. Management of livestock in fringe areas, in and surrounding the breeding areas. Feeding habits, feeds and feeding schedules of captive animals. Restraining, capture, handling, physical examination of captive animals. Classification of zoos, management of sanctuaries, national parks etc. Acts and Rules related to captive animals. National and international organization and institutions interlinked to captive animals role and functioning.

UNIT-5 (ANIMAL WELFARE)

Definition of animal welfare and ethics. Human and animal welfare in relation to ecosystem and environmental factors. Role of veterinarians in animal welfare. Animal welfare organizations, Animal Welfare Board of India - their role, functions and current status. Rules, regulations, laws on animal welfare. Prevention of Cruelty to Animals (PCA) Act, 1960 {59 of 1960). Role and function of Committee for the Purpose of Controlling and Supervising Experiments in Animals (CPCSEA). Protection of wild life in nature and captivity. Protection and welfare of performing animals. Welfare of animals during transportation. Animal welfare in commercial livestock farming practices. Protection and welfare of working animals. Pet and companion animal welfare. Animal welfare during natural calamities and disaster management. Legal duties of veterinarians, Common offences against animals and laws related to these offences. Provincial and Central Acts relating to animals. Laws relating to offences affecting Public Health. Livestock Importation Act Evidence, liability and insurance. Code of Conduct and Ethics for veterinarians - the Regulations made under the Act.

UNIT-6 (POULTRY PRODUCTION MANAGEMENT)

Indian poultry industry – Brief outline of the different segments – poultry statistics. Classification of poultry with respect to production characters, age and standards. Production characters of other avian species. Description of indigenous fowls and their value in rural farming. Specific strains developed for rural poultry production; their acceptability and importance in rural eco-system

Brooding management – Types of brooders – preparation of shed – Importance of environmental factors. Housing – Types of poultry houses – space requirements. Recent advances in housing systems and rearing systems. Scavenging system of management – Low input technology – Backyard and semi-intensive units; their management and economic achievements. Deep litter management – control of litter-borne diseases and recycling of litter. Cage management – Different types; Advantages and disadvantages. Management of growers and layers. Management of broilers and breeders. Stress management. Feeding management–Classification of nutrients – Nutrient requirements and feed formulations. Feeding systems–Feed restrictions – phase feeding – Additives and supplements. Water management. Breeding systems and methods of mating. Selection and culling. Breeding for specific characters and for hybrid chicken production. Poultry judging. Egg structure – Physical and chemical composition. Bio-security and principles of disease prevention management. Health care for common poultry diseases – vaccination. General principles of poultry medication.

UNIT-7 (DIVERSIFIED POULTRY PRODUCTION AND HATCHERY MANAGEMENT)

Principles of incubation and hatchery management practices. Factors affecting fertility and hatchability, selection and care of hatching eggs and hatchery hygiene. Candling, sexing, grading, packing and disposal of hatchery waste. Economics of hatchery business – Troubleshooting hatchery failures–Computer applications in hatchery management. Poultry waste management, pollution and environmental issues. Organic and hill farming. Mixed or integrated poultry farming

Vertical & horizontal integration in commercial poultry production – Contract farming. Exportorimport of poultry produce and marketing. Management of ducks, geese, turkeys, Japanese quails, guinea fowls etc.

UNIT-8 (LABORATORY OR RABBIT OR PET ANIMAL PRODUCTION MANAGEMENT)

Importance and selection of laboratory animal, care and housing standards of mice, rats, hamster and guinea pigs. General considerations on feeding and breeding of laboratory animals. Concept of production of specific pathogen free and germ free laboratory animals. Scope of rabbit farming in the country, breeds and their distributions in India. Limitation of rabbit animal production, Selection, care and management of breeding stock for commercial purpose. Identification, care and management of kindling animals. Care of new born, growing stock. Breeding and selection techniques for optimal production of rabbit. Feeds and feeding for rabbit production. Hygienic care and Housing for rabbit production. Disposal, utilization and recycling of waste etc. Preparing projects for micro (Backyard), mini and major rabbit farms. Important breeds of dogs, cats and pet birds. Feeding of dogs, cats and pet birds. Dog show: preparation for show, kennel clubs, important characteristics for judgment. Utility of dogs- guarding, defense, patrolling, riot control, scouting, espionage, mine detection, tracking, guiding, hunting, races, retrieving rescue and other uses.

UNIT-9 (SWINE OR EQUINE OR CAMEL, YAK AND MITHUN PRODUCTION MANAGEMENT)

Introduction and scope of swine farming in the country. Demography of swine population. Selection and breeding techniques in swine. Important breeds (exotic and indigenous) & their characteristics. Housing and feeding of swine. Management of different categories of swine for optimal production: breeding and pregnant sows; sows at farrowing and after farrowing: pig-lets, growing stock, lactating sows, feedlot stock. Equine population of India. Horses, donkeys and mules and their utility. Colors and markings. Identification of breeds of horses. Dentition and ageing of horses. Care and routine management of equines including grooming, saddling and exercise. Stable and its management. Vices of horses. Foot care and shoeing care. Feeding routine for horse, donkeys and mules. Care of stallion. Mating of horses, brood mare and its care. Foaling and care of newborn. Breeding mules. Care of race horses and preparing horses for show. Doping and its detection. Colic and its prevention. Common breeds of camel in India and their utility, peculiarities in camel. Feeding schedule of camel, rutting symptoms in camel, Vices of camel. Care of breeding in camel, pregnancy and parturition of camel. Population statistics and utility, peculiarities of yak. Feeding and breeding of MithunorYaks. Yak × cattle crossing, hybrids from Mithun or Yaks and their adaptation to high altitude, milk composition of Mithun or Yaks.

PRACTCAL

UNIT-1 (GENERAL LIVESTOCK MANAGEMENT)

General introduction of the Institute animal farm. Identification of common tools used on animal farm. Familiarization with body points of animals. Methods of identification (marking, tattooing, branding, tagging and electronic chip under pre emptive analgesia). Use of rope for knot and halter making. Dentition and ageing of animals. Preparation of animals for show and judging. Selection and culling of animals. Preparation of project proposal

UNIT-2 (FODDER PRODUCTION AND CONSERVATION)

Visit to the fodder farm. Familiarization with the various types of fodders in the state and India. Familiarization with various fertilizers and manures. Collection, preservation and storage of feed and fodder; Damagesorloss during transfer and storage; methods to prevent them. Cost of calculations of fodder production. Livestock waste utilization and recycling.

UNIT-3 (LIVESTOCK PRODUCTION MANAGEMENT-RUMINANTS)

Layout plans for different livestock houses. Visit to different animal farms and Identification of various breeds of cattle, buffalo, sheep and Goat. Humane handling and restraining of cattle, buffalo, sheep and Goat. Clipping, shearing, dipping, spraying and spotting sick animals. Determination of body weight using different measurements. Familiarization with routine cattle, buffalo, sheep and goat farm operations. Milking of dairy animals. Shearing of sheep. Training of breeding males. Detection of heat. Identification and care of pregnant animals, care of neonatal and young stock. Economics of dairy, sheeporgoat farm.

UNIT-4 (ZOO ANIMALS PRODUCTION MANAGEMENT)

Visit to nearby wildlife sanctuary, captive animals centres to study care and management of these animals. To study housing of captive animals. To study feeds and feeding schedule of captive animals. Hygienic preparation, preservation

and storage of feeds of captive animals. Familiarization about restraining, handling and physical examination of captive animals.

UNIT-5 (POULTRY PRODUCTION MANAGEMENT)

Common breeds of poultry, different classes, Indian chickens and other avian species breeds. Digestive and respiratory system of chicken. Male and female reproductive system–Quality changes in egg during storage. Economic traits of broilers. Economic traits of egg-type chicken and breeders. AI in poultry. Housing and design of a poultry farm. Poultry farm equipment and their classification. Brooding arrangement in broiler farms. Poultry feed ingredients and its quality assessment. Poultry feed preparations. Calculation of different economic indices of broiler farm. Calculation of economic indices of layer farm. Fundamentals in poultry Post-mortem examination for sample collection. Collection and dispatch of samples for PM examination. Management during Summer, Winter and Rainy season. Automization in poultry farms (EC house).

UNIT-6 (INCUBATION AND HATCHERY MANAGEMENT)

Hatchery layout and design. Project report for establishing a broiler farm. Project report for establishing a layer farm. Project report for establishing a breeder farm. Visit to commercial poultry farms or hatchery or feed mill. Visit to farms of other avian species.

UNIT-7 (LABORATORY OR RABBIT OR PET ANIMAL PRODUCTION MANAGEMENT)

Identification of body parts and handling, weighing, sexing and weaning of laboratory animals. Marking for identification of laboratory animals for purpose of their individual recording. Computation, feeding schedule of balanced diet for high breeding efficiency of laboratory animals. Maintenance of breeding records of laboratory animals. Prophylactic measures against common disease of laboratory animals. Hygienic care and control of parasites. Shearing of rabbit. Feeding and Housing requirement and equipments for rabbit. Projects report for establishing of rabbit farm. Handling and restraining of dog, cat and pet bird and equipments for pet animals and birds. Brushing or grooming and bathing of dogs and cats. Nail and tooth care, clipping of hairs for show purpose. Care of pups, kitten and weaning.

UNIT-8 (SWINE OR EQUINE OR CAMEL, YAK AND MITHUN PRODUCTION MANAGEMENT)

Handling, restraining of swine, equines, camel. Identification of pregnant animals, care during pregnancy, isolation and care of farrowing sows and piglets. Preparation of swine, equine for show and judging, Economics of pig. Routine inspection, tooth care and vaccination schedule. Horse riding: walking, trotting, cantering and galloping. Layout plans for sty, stables

ANNUAL EXAMINATION

PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
THEORY			
Paper-I	1, 2, 3, 4 and 5	100	20
Paper-II	6,7,8 and 9	100	20
PRACTICAL			
Paper-I	1, 2, 3and 4	60	20
Paper - II	5,6,7 and 8	60	20

(iv) **DEPARTMENT OF VETERINARY MICROBIOLOGY**

VETERINARY MICROBIOLOGY **Credit Hours: 3+2**

THEORY

UNIT-1 (GENERAL & SYSTEMATIC VETERINARY BACTERIOLOGY)

Introduction and history of Microbiology; Classification and nomenclature of bacteria; Microscopy and Micrometry; Bacterial stains and techniques; Structure and morphology of bacteria; Growth and nutritional requirement of aerobic and anaerobic bacteria; Normal, opportunistic and saprophytic bacterial flora: Types and sources of infection, method of transmission of infection. Pathogenicity, virulence, determinants of virulence, Epizootic and enzootic diseases, bacteremia, septicaemia and toxaemia, endotoxins, exotoxins, antitoxins, toxoids; Bacterial genetics (Mutation, Transformation, Transduction and Conjugation), plasmids and antibiotic resistance.

Study of the following bacteria in relation to isolation, growth, cultural, morphological, biochemical and antigenic characteristics, epidemiology and pathogenesis, pathogenicity, diagnosis, prevention and control of bacterial diseases caused by following bacteria:

Staphylococcus; Streptococcus; *Corynebacterium, Trueperella,Rhodococcus; Listeria* and *Erysepelothrix; Bacillus; Mycobacterium; Clostridium, Actinomyces, Nocardia, Streptomyces* and *Dermatophilus;* Family *Enterobacteriaceae* (*E.coli, Klebsiella, Salmonella, Yersinia, Proteus*); *Pseudomonas* and *Burkholderia; Pasteurella*, *Mannheimia, Actinobacillus and Haemophilus, Brucella; Vibrio; Campylobacter; Bordetella and Moraxella; Gram negative anaerobes: Bacteriodes, Dichlobacteria and Fusobacterium; Leptospira and other Spirochaetes;Mycoplasma, Coxiella, Neorickettsia, Ehrlichia, Anaplasma, Rickettsia; Chlamydia and Chlamydophila*

Emerging, re-emerging and transboundry bacterial pathogens.

UNIT-2 (VETERINARY MYCOLOGY)

Introduction, classification, general properties of fungi; Growth and Reproduction of fungi; Study of following important pathogenic fungi in relation to their isolation, growth, morphological, cultural, biochemical and antigenic characteristics, epidemiology, pathogenesis, diagnosis and control of fungal diseases caused by following genera: *Candida* and *Cryptococcus; Aspergillus; Penicillium;* Dermatophytes and Malassezia; Dimorphic fungi, *Rhinosporidium* and *Sporotrichum;* Mycetoma and *Zygomycetes;* Mycotic mastitis and mycotic abortion; Mycotoxicoses

UNIT-3 (MICROBIAL BIOTECHNOLOGY)

Basic concepts and scope of Recombinant DNA technology; Gene cloning, Cloning vectors and expression vectors; Transformation and transfection; Southern, Northern and Western blotting; Bioinformatics, Gene banks; Application of molecular and biotechnological techniques: Polymerase chain reaction, Nucleic acid hybridization, DNA library, DNA sequencing and DNA fingerprinting; IPR. Ethics and regulatory issues in Animal Biotechnology.

UNIT-4 (VETERINARY IMMUNOLOGY AND SEROLOGY)

History of Immunology; Lymphoid organs, tissues and Cells: Types of Immunity; Antigens, hapten, epitope, Specificity, T dependent and T independent Antigens, heterophile Antigens, cross reacting Antigens, blood group Antigens, Mitogens and factors affecting immunogenicity; Adjuvants; Antibody: Structure, physiochemical properties and functions of various classes of immunoglobulins, Theories of antibody production; Hybridoma and monoclonal antibodies, Serological reactions. Major histocompatibility complex (MHC) structure, function and gene organization; Structure of BCR and TCR; Antigen processing and presentation; Complement system: activation pathways and biological consequences; Cytokines: general properties, major types and function; Hypersensitivity: classification and mechanism of induction; Autoimmunity; Immunotolerance; Concept of Immunity to Microbes, Vaccines and other biological.

UNIT-5 (GENERAL AND SYSTEMATIC VETERINARY VIROLOGY)

History of Virology; Introduction to viruses; Structure of Viruses; Classification of Viruses; Viral Replication; Genetic and Non-genetic viral interactions; Virus-Cell Interactions; Viral Pathogenesis, Oncogenesis, latency and immunopathology. Studies on General Properties, Antigens, Cultivation, Pathogenesis, Epidemiology, Clinical Signs, Diagnosis, Prevention and Control of following Viruses and Prions Causing Diseases in Livestock and Poultry: *Birnaviridae*: Infectious bursal disease virus; *Reoviridae:* Rotaviruses, Bluetongue virus, African horse sickness virus; *Paramyxoviridae*: Newcastle disease virus, Canine distemper virus, PPR virus; *Rhabdoviridae*: Rabies virus, Ephemeral fever virus, *Bornaviridae*: Borna virus. *Orthomyxoviridae*: Swine, Equine, Avian Influenza Viruses. *Coronaviridae*: Infectious Bronchitis virus, Transmissible gastroenteritis virus; *Arterivirdae:* Equine viral arteritis virus, *Picornaviridae*: FMD virus, Duck viral hepatitis virus; *Caliciviridae*: Feline calici Virus, *Togaviridae*: Equine encephalomyelitis viruses; *Flaviviridae*: Swine fever virus, BVD virus; *Retroviridae*: Visna or maedi virus, Equine infectious anemia virus, Lymphoid leucosis virus, Bovine leukemia virus. *Poxviridae*: Capripoxvirus, Avipoxvirus, Cowpoxvirus; *Asfarviridae*: African Swine Fever Virus; *Herpesviridae*: Bovine herpes viruses, Equine Herpes viruses, Infectious laryngotracheitis virus, Marek's disease virus, Pseudorabies virus, Malignant Catarrhal Fever virus; Duck Plague virus, *Adenoviridae*: Infectious Canine Hepatitis virus, Egg Drop Syndrome virus, Fowl adenovirus, *Papillomaviridae*: Papillomatosis, *Parvoviridae*: Canine parvoviruses, Feline panleucopenia virus; *Circoviridae*: Chicken Anemia Virus: Prions: Scrapie, Bovine Spongiform Encephalopathy; Emerging, re-emerging and transboundry viruses and Viral Infections.

PRACTICAL

UNIT-1 (GENERAL AND SYSTEMATIC VETERINARY BACTERIOLOGY)

Orientation to bacteriology laboratory; Methods of sterilization and disinfection; Preparation of culture media for cultivation of aerobic and anaerobic bacteria; Methods of inoculation, Cultivation of aerobic and anaerobic bacteria; Isolation of bacteria in pure culture; Simple staining, Negative staining, Differential staining procedures of bacteria: Gram's staining, Acid fast staining; Special staining procedures: Capsule and Spore staining; Bacterial motility; Culture sensitivity test; Outlines of collection, transportation and processing of samples for bacterial disease diagnosis.

Characterization of *Staphylococcus; Streptococcus; E. coli Salmonella; Klebsiella and Proteus; Pseudomonas; Pasteurella; Clostridium;* Isolation and identification of bacteria from clinical cases of Mastitis, Abortions, Enteric, Respiratory and Pyogenic infections.

UNIT-2 (VETERINARY MYCOLOGY)

Outline of collection, transportation and processing of samples for fungal disease diagnosis, Preparation of culture media, Cultivation and slide culture technique of fungi; Cultural characteristics of fungi; Lactophenol cotton blue staining to study morphology of fungi; Culture sensitivity test of fungi; Diagnosis of Aspergillosis and Candidiasis; Demonstration of other important yeast, moulds and Dermatophytes

UNIT-3 (MICROBIAL BIOTECHNOLOGY)

Extraction and quantitation of nucleic acid; Plasmid isolation and plasmid profiling; Agarose gel electrophoresis for studying or diagnosis of nucleic acid of microbes; SDS PAGE electrophoresis for studying or diagnosis of proteins of microbes; Use of Multimedia and audio-visual aids for molecular biology aspects.

UNIT-4 (VETERINARY IMMUNOLOGY AND SEROLOGY)

Inoculations of lab animals, preparation of antigen, Raising of antisera, separation and preservation of serum, Concentration of Immunoglobulins, Agglutination tests: Plate, Tube, Haemagglutination, Precipitation test: Agar gel precipitation Test, Single radial immunodiffusion test, Immunoelectrophoresis, Cell mediated immune response (DTH), Enzyme linked immunosorbent assay (ELISA), Visit and appraisal of Veterinary biological institute.

UNIT-5 (GENERAL AND SYSTEMATIC VETERINARY VIROLOGY)

Orientation to a virology laboratory; Collection, preservation, transport of samples and their processing in virology laboratory; Isolation of viruses in laboratory animals or poultry or embryonated chicken eggs; Preparation of media and reagents for cell culture; Subculture and maintenance of continuous cell lines; Quantitation of cells by viable cell counts in a haemocytometer; Cryopreservation and recovery of cell cultures; Preparation of Primary cell culture (chicken embryo fibroblast or Lamb kidney); Demonstration of cytopathic effect by viruses in cell culture (Important virus isolates available in the department); Demonstration of Titration of virus by $TCID_{50}$ and plaque assay in cell cultures*; Demonstration of neutralizing antibodies by serum neutralization test in cell cultures* ; Agar gel precipitation test for detection of virus infection*; Titration of Newcastle disease virus by haemagglutination test; Haemagglutination inhibition test for detection of antibodies to Newcastle disease virus; ELISA for detection of viral antigen and antibodies; Molecular techniques for viral disease diagnosis

*Important virus isolates available in the department.

ANNUAL EXAMINATION

PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
THEORY			
Paper-I	1,2 and 3	100	20
Paper-II	4 and 5	100	20
PRACTICAL			
Paper-I	1, 2and 3	60	20
Paper - II	4 and 5	60	20

(v) **DEPARTMENT OF VETERINARY PATHOLOGY**

VETERINARY PATHOLOGY **Credit Hours: 4+2=6**

THEORY

UNIT-1 (GENERAL VETERINARY PATHOLOGY)

Introduction and scope of Veterinary Pathology. Major intrinsic and extrinsic causes of disease. Haemodynamic disorders (hyperaemia, congestion, haemorrhage, oedema, thrombosis, embolism and infarction). Glycogen overload, amyloidosis and fatty changes. Reversible and irreversible cell injury- degenerations, necrosis and its types, apoptosis, differences between post-mortem autolysis and necrosis, gangrene and its types. Major exogenous and endogenous pigments. Metastatic and dystrophic calcification. Photosensitization. Disturbances in growth (Aplasia, hypoplasia, atrophy, hypertrophy, hyperplasia, metaplasia and dysplasia). Inflammation: Definitions, classification, various cell types

and their functions, mediators, cardinal signs and systemic effects. Wound healing by primary and secondary intention including growth factors. Immunopathology in brief (immunodeficiency, hypersensitivity and autoimmunity).

UNIT-2 (SYSTEMIC VETERINARY PATHOLOGY)

Pathological changes affecting Digestive, Respiratory, Musculoskeletal, Cardiovascular, Haematopoietic, Lymphoid, Urinary, Reproductive, Nervous, Endocrine systems, Skin and Appendages, Ear and Eye.

UNIT-3 (ANIMAL ONCOLOGY, VETERINARY CLINICAL PATHOLOGY AND NECROPSY)

Animal Oncology: Definitions, general characteristics and classification of neoplasms. Differences between benign and malignant tumours, aetiology, carcinogenesis and spread of neoplasms, tumour immunity, effects and diagnosis of tumours, staging and grading of neoplasms. Pathology of various types of tumours in domestic animals (epithelial, connective tissue, hematopoietic tissue etc.)

Veterinary Clinical Pathology: Introduction, Haematology – Different anticoagulant used in haematology, interpretation of blood tests (haemoglobin, packed cell volume, total erythrocyte count, erythrocytic indices, erythrocytic sedimentation rate, total leukocyte count, absolute count of different leucocytes), blood smear examination and its interpretation.

Urinalysis- Interpretation of physical, chemical and microscopic examination of urine. Study of biopsy and cytology including exfoliative cytology as rapid diagnostic techniques.

Necropsy: Introduction, objectives, pre-necropsy guidelines, procedure for post mortem examination of various species of animals including wild animals, post mortem changes, collection, preservation and dispatch of specimens (morbid materials) for laboratory examination, writing of post mortem report, veterolegal necropsy , veterolegal wounds.

UNIT-4 (PATHOLOGY OF INFECTIOUS AND NON-INFECTIOUS DISEASES OF DOMESTIC ANIMALS)

Pathology of viral infections: Pathogenesis, gross and microscopic pathology of foot and mouth disease,Rinderpest, malignant catarrhal fever, blue tongue, infectious bovine rhinotracheitis, bovine viral diarrhoea, Peste des Petitis (PPR), equine infectious anaemia, equine influenza, equine viral arteritis, equine rhinopneumonitis, classical swine fever, swine influenza, rabies, canine distemper, infectious canine hepatitis, canine parvovirus infection, feline panleukopenia, maedi, jaagziekte, pox virus diseases in different animals. Vesicular stomatitis, vesicular exanthema, equine encephalomyelitis, diseases caused by rota and corona viruses.

Pathology of prion diseases (scrapie, bovine and feline spongiform encephalopathies).

Pathology of bacterial infections: Pathogenesis, gross and microscopic pathology of tuberculosis, Johne's disease, actinomycosis, actinobacillosis, anthrax, clostridial group of diseases (black quarter, black disease, enterotoxaemia, braxy, botulism tetanus), streptococosis including strangles in horses, staphylococosis, glanders, pasteurellosis, leptospirosis, listeriosis, swine erysipelas, brucellosis, corynebacterium infections (caseous lymphadenitis, pseudotuberculosis), campylobacteriosis, salmonellosis, and colibacillosis including oedema disease in pigs, and necrobacillosis).

Pathogenesis, gross and microscopic pathology of mycoplasma infection (contagious bovine pleuropneumonia, contagious caprine pleuropneumonia, porcine enzootic pneumonia), diseases of chlamydial group, Q-fever, anaplasmosis and ehrlichiosis.

Pathogenesis, gross and microscopic pathology of superficial and deep mycoses - ringworm (dermatophytosis), aspergillosis, zygomycosis, histoplasmosis, cryptococosis, rhinosporidiosis and candidiasis. Pathogenesis, gross and microscopic pathology of aflatoxicosis, ochratoxicosis, trichothecosis, Degnala disease and ergotoxicosis.

Pathogenesis, gross and microscopic pathology of fasciolosis, babesiosis, theileriosis and trypanosomosis. Pathological changes (in brief) of amphistomiasis, ascariasis, strongylosis, haemonchosis, spirocercosis, filariasis, hookworm, tapeworm infections, coccidiosis, toxoplasmosis, cryptosporidiosis,

Pathological changes of nutritional imbalances (in brief) due to carbohydrates, proteins, fats, minerals and vitamins and metabolic diseases (pregnancy toxaemia, post-parturient haemoglobinuria, hypomagnesemic tetany, azoturia, and sway backorenzootic ataxia, pica and Rheumatism like syndrome).

Gross and microscopic pathologyin (brief) of toxicities like arsenic, copper, lead, mercury, cadmium, strychnine, nitrateornitrite, hydrocyanic acid, fluoride, selenium and oxalates; insecticideorpesticide poisoning, plant poisoning (braken fern, gossypol, ratti and lantana)

UNIT-5 (AVIAN PATHOLOGY)

Avian Inflammation, Viral Diseases: Pathogenesis, gross and microscopic pathology of Ranikhet disease, infectious bursal disease, infectious bronchitis, infectious laryngotracheitis, fowl pox, avian influenza, Marek's disease,

leukosisorsarcoma group of diseases, reticuloendotheliosis, avian encephalomyelitis, inclusion body hepatitis, hydro-pericardium syndrome, chicken infectious anaemia, avian nephritis, egg drop syndrome, reovirus infections.

Bacterial Diseases: Pathogenesis, gross and microscopic pathology of colibacillosis, infectious coryza, clostridial diseases, salmonella infections, fowl cholera, tuberculosis and spirochaetosis. Pathogenesis, gross and microscopic pathology of *Mycoplasma* infections, chlamydiosis.

Pathogenesis, gross and microscopic pathology of aspergillosis, thrush, favus, aflatoxicosis, ochratoxicosis and trichothecosis.

Gross and microscopic pathology (in brief) of helminthic diseases (flukes, cestodes, nematodes), protozoal diseases (coccidiosis, histomoniasis), ectoparasites.

Gross and microscopic pathology of nutritional imbalances due to carbohydrates, proteins, minerals and vitamins. Miscellaneous diseases (Heat stroke, vent gleet, internal layer, false layer, pendulous crop, breast blister, ascites syndrome, fatty liver and kidney syndrome, fatty liver syndrome, cage layer fatigue, gout, hemorrhagic syndrome, round heart disease, impaction of oviduct, egg bound condition, bumble foot) and common vices.

UNIT-6 (PATHOLOGY OF DISEASES OF LABORATORY AND WILD ANIMALS)

Pathology of important diseases of rats, mice, and guinea pigs (Tyzzer's disease, Pseudotuberculosis, Salmonellosis, Infectious ectromelia, Infantile diarrhea, Murine hepatitis virus, Lymphocytic choriomeningitis); Pathology of important diseases of rabbits (Pasteurellosis, Blue breasts, Treponematosis, Enterotoxaemia, Rabbit pox , Infectious myxomatosis, Papillomatosis , Coccidiosis, Mite infestation). Gross and microscopic pathology of important diseases of wild animals (West Nile Fever, Rabies, FMD, Pox, Kyasanaur forest disease, Infectious hepatitis virus, Anthrax, Tuberculosis, Colibacillosis, Clostridial infections Trypanosomosis, Babesiosis, Theileriosis, Nutritional deficiency diseases)

PRACTICAL

UNIT-1 (GENERAL VETERINARY PATHOLOGY)

Study of gross pathological specimens and recognition of pathological lesions. Histopathological techniques– Processing of tissue for paraffin embedding technique, section cutting, staining and identification of microscopic lesions. Examination of histopathological slides showing general pathological alterations.

UNIT-2 (SYSTEMIC VETERINARY PATHOLOGY)

Study of gross specimens and histopathological slides pertaining to systemic pathology.

UNIT-3 (ANIMAL ONCOLOGY, VETERINARY CLINICAL PATHOLOGY AND NECROPSY

Macroscopic and microscopic examinations of various types of benign and malignant tumours. Examination of blood for routine haematological tests in domestic animals and poultry. Physical, chemical and microscopic examination of urine. Post mortem examination of different species of animals including wild and laboratory animals.

UNIT-4 (PATHOLOGY OF INFECTIOUS AND NON-INFECTIOUS DISEASES OF DOMESTIC ANIMALS)

Post mortem examination and its interpretations, Study of gross specimens and histopathological slides of various organs pertaining to infectious and non- infectious diseases of domestic animals. Demonstration of causative agents in tissue section by special staining methods and use of rapid diagnostic tests.

UNIT-5 (AVIAN PATHOLOGY)

Post mortem examination of poultry and writing of post mortem report. Collection, preservation and dispatch of morbid materials in poultry diseases. Study of gross specimens and histopathological slides of different diseases of poultry.

UNIT-6 (PATHOLOGY OF DISEASES OF LABORATORY AND WILD ANIMALS)

Post mortem examination of laboratory and wild animals. Study of gross specimen and histopathological slides of diseases affecting laboratory and wild animals.

ANNUAL EXAMINATION

PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
THEORY			
Paper-I	1, 2 and 3	100	20
Paper-II	4, 5 and 6	100	20

PRACTICAL			
Paper-I	1, 2 and 3	60	20
Paper - II	4, 5 and 6	60	20

(vi) **DEPARTMENT OF ANIMAL GENETICS AND BREEDING**

ANIMAL GENETICS AND BREEDING **Credit Hours: 3+1**

THEORY

UNIT-1 (BIOSTATISTICS AND COMPUTER APPLICATION)

Biostatistics: Introduction and importance of statistics and biostatistics, Classification and tabulation of data. Parameter, Statistic and Observation. Graphical and diagrammatic representation of data. Measures of Central tendency (simple and grouped data). Measures of Dispersion (simple and grouped data). Probability and probability distributions: Binomial, Poisson and Normal. Moments, Skewness and Kurtosis. Correlation and Regression. Introduction of sampling methods. Tests of hypothesis- t and Z- tests. Chi-square test. Design of experiment- Completely randomized design (CRD). Randomized block design (RBD). Analysis of variance and F-test of significance. Introduction to Non-parametric tests.

Computer Application: Introduction to computer languages. Data Base Management. Review of MS-Office and its components (MS-Word, Excel, Power Point and Access). Analysis of data using MS-Excel. Concepts of computer networks, internet & e-mail.

UNIT-2 (PRINCIPLES OF ANIMAL AND POPULATION GENETICS)

Animal Genetics: History of Genetics. Mitosis vors Meiosis. Chromosome numbers and types in livestock and poultry. Overview of Mendelian principles. Modified Mendelian inheritance. Pleiotropy, Penetrance and expressivity. Multiple alleles; lethals; sex-linked, sex limited and sex influenced inheritance. Sex determination. Linkage, crossing over and construction of linkage map. Mutation, Chromosomal aberrations. Cytogenetics, Extra-chromosomal inheritance. Molecular genetics, nucleic acids-structure and function. Gene concept, DNA and its replication. Introduction to molecular techniques.

Population Genetics: Introduction to population genetics; individual vors population. Genetic structure of population: Gene and genotypic frequency. Hardy - Weinberg law and its application. Forces changing gene and genotypic frequencies (eg Mutation, migration, selection and drift). Quantitative vors qualitative genetics; concept of average effect and breeding value. Components of Variance. Concept of correlation and interaction between Genotype and Environment. Heritability and Repeatability. Genetic and Phenotypic Correlations.

UNIT-3 (PRINCIPLES OF ANIMAL BREEDING)

Livestock and Poultry Breeding: History of Animal Breeding. Classification of breeds. Economic characters of livestock and poultry and their importance. Selection, types of selection, response to selection and factors affecting it. Bases of selection: individual, pedigree, family, sib, progeny and combined, indirect selection. Method of selection, Single and Multi trait. Classification of mating systems. Inbreeding coefficient and coefficient of relationship. Genetic and phenotypic consequences of inbreeding, inbreeding depression, application of inbreeding. Out breeding and its different forms. Genetic and phenotypic consequences of outbreeding, application of outbreeding, heterosis. Systems of utilization of heterosis; Selection for combining ability (RS and RRS). Breeding strategies for the improvement of dairy cattle and buffalo. Breeding strategies for the improvement of sheep, goat, swine and poultry. Sire evaluation. Open nucleus breeding system (ONBS). Development of new breeds or strains. Current livestock and poultry breeding policies and programmes in the state and country. Methods of conservation- livestock and poultry conservation programmes in the state and country. Application of reproductive and biotechnological tools for genetic improvement of livestock and poultry. Breeding for disease resistance.

Breeding of pet, zoo and wild animals: Classification of dog and cat breeds. Pedigree sheet, selection of breeds and major breed traits. Breeding management of dogs and cats. Common pet birds seen in India and their breeding management.

Population dynamics and effective population size of wild animals in captivityorzooornatural habitats. Planned breeding of wild animals. Controlled breeding and assisted reproduction. Breeding for conservation of wild animals.

PRACTICAL

UNIT-1 (BIOSTATISTICS AND COMPUTER APPLICATION)

Collection, compilation and tabulation of data. Estimation of measures of central tendency (mean, median, mode) for simple and grouped data. Estimation of measures of dispersion (Range, standard deviation, standard error, variance, and coefficient of variation) for simple and grouped data. Graphical and diagrammatic representation of data. Estimation of correlation and regression. Simple probability problems, Normal distribution. Tests of significance: t-test, Z – test, Chi-

square, F- tests. Completely randomized design (CRD). Randomized block design (RBD). Computer basics and components of computer. Simple operations: internet and e-mail, Entering and saving biological data through MS-Office (MS-Excel)

UNIT-2 (PRINCIPLES OF ANIMAL AND POPULATION GENETICS)

Monohybrid, Dihybrid cross and Multiple alleles. Modified Mendelian inheritance and sex linked inheritance. Linkage and crossing over. Demonstration of Karyotyping in farm animals. Calculation of gene and genotypic frequencies, Testing a population for Hardy-Weinberg equilibrium. Calculation of effects of various forces that change gene frequencies. Computation of population mean, average effect of gene and gene substitution and breeding value. Estimation of repeatability, heritability, genetic and phenotypic correlations.

UNIT-3: (PRINCIPLES OF ANIMAL BREEDING)

Computation of selection differential and intensity of selection, Generation interval, expected genetic gain, correlated response, EPA and Most probable producing ability (MPPA). Estimation of inbreeding and relationship coefficient. Estimation of heterosis. Computation of sire indices. Computation of selection index.

ANNUAL EXAMINATION

PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
THEORY			
Paper-I	1 and 2	100	20
Paper-II	3	100	20
PRACTICAL			
Paper-I	1 and 2	60	20
Paper - II	3	60	20

(vii) **DEPARTMENT OF ANIMAL NUTRITION**

ANIMAL NUTRITION **Credit Hours: 3+1**

THEORY

UNIT-1 (PRINCIPLES OF ANIMAL NUTRITION AND FEED TECHNOLOGY)

History of animal nutrition. Importance of nutrients in animal production and health. Composition of animal body and plants. Nutritional terms and their definitions. Nutritional aspect of carbohydrates, protein and fats. Role and requirement of water, metabolic water. Importance of minerals (major and trace elements) and vitamins in health and production, their requirements and supplementation in feed. Common feeds and fodders, their classification, availability and importance for livestock and poultry production. Measures of food energy and their applications - gross energy, digestible energy, metabolizable energy, net energy, total digestible nutrients, starch equivalent, food units, physiological fuel value. Direct and indirect calorimetry, carbon and nitrogen balance studies. Protein evaluation of feeds - Measures of protein quality in ruminants and non-ruminants, biological value of protein, protein efficiency ratio, protein equivalent, digestible crude protein. Calorie protein ratio. Nutritive ratio. Introduction to feed technology- Feed industry; Processing of concentrates and roughages. Various physical, chemical and biological methods for improving the nutritive value of inferior quality roughages. Preparation, storage and conservation of livestock feed through silage and hay and their uses in livestock feeding. Harmful natural constituents and common adulterants of feeds and fodders. Feed additives in the rations of livestock and poultry and their uses.

UNIT-2 (APPLIED RUMINANT NUTRITION-I)

Importance of scientific feeding. Feeding experiments. Digestion and metabolism trial. Norms adopted in conducting digestion trial. Measurement of digestibility. Factors affecting digestibility of a feed. Feeding standards, their uses and significance, merit and demerits of various feeding standards with reference to ruminants. Balanced ration and its characteristics.

UNIT-3 (APPLIED RUMINANT NUTRITION-II)

Nutrient requirements and methods for assessing the energy and protein requirements for maintenance and production in terms of growth, reproduction, milk, meat, wool and draft purpose. General principles of computation of rations.

Formulation of rations and feeding of dairy cattle and buffaloes during different phases of growth and production (neonate, young, adult, pregnant, lactating and dry animals; breeding bull) and working animals. Formulation of ration and feeding of sheep and goat during different phases of growth and production (milk, meat and wool). Feeding of high yielding animals and role of bypass nutrients. Metabolic disorders and nutritional interventions. Use of NPN compound for ruminants.

UNIT-4 (APPLIED NON-RUMINANT NUTRITION)

Nutrient requirements in poultry, swine and equine - Energy and protein requirement for maintenance and production. Methods adopted for arriving at energy and protein requirements for maintenance and production in terms of growth, reproduction and production (egg, meat and work). Feeding standards for non-ruminants and poultry Formulation of rations as per Bureau of Indian Standards and Indian Council of Agricultural Research specifications. Feeding of swine (Piglets, Growers, Lactating and pregnant sows, Breeding boar, Fattening animals), equine (foal, yearling, broodmare, stallion and race horses) and poultry (Starter, Growers, Broilers, Layers) with conventional and unconventional feed ingredients. Feeding of ducks, quails, turkeys and laboratory animals. Nutrient requirements of mice, rat, rabbit and guinea pig. Diet formulation, preparation and feeding of rabbits and laboratory animals. Nutrient requirement and feeding of different categories of dogs and cats; peculiarities of feeding cats. Feeding of wild animals and birds in captivity. Metabolic disorders and nutritional intervention.

PRACTICAL

UNIT-1 (PRINCIPLES OF ANIMAL NUTRITION AND FEED TECHNOLOGY)

General precautions while working in nutrition laboratory. Familiarisation of various feeds and fodders. Preparation and processing of samples for chemical analysis - herbage, faeces, urine and silages. Preparation of solutions. Weende System of analysis - Estimation of dry matter, total ash, acid insoluble ash, crude protein, ether extract, crude fibre, nitrogen free extract in feed samples. Estimation of calcium and phosphorus. Demonstration of detergent methods of forage analysis. Qualitative detection of undesirable constituents and common adulterants of feed.

UNIT-2 (APPLIED RUMINANT NUTRITION-I)

Calculation of nutritive value of different feed stuffs in terms of digestible crude protein (DCP), total digestible nutrient (TDN), Nutritive ratio (NR) and balance of nutrients.

UNIT-3 (APPLIED RUMINANT NUTRITION-II)

Calculation of requirements of nutrients in terms of DCP, TDN and metabolisable energy (ME) for maintenance, growth, and other types of production like meat, milk, wool, reproduction and draft purpose. Formulation of rations for different categories of livestock under different conditions. Formulation of rations for feeding of livestock during scarcity periods. Visit to Animal Farm and Feed Mill.

UNIT-4 (APPLIED NON-RUMINANT NUTRITION)

Calculation of requirements of nutrients for growth, reproduction and other types of production like egg and meat. Formulation of rations for poultry and swine with conventional and unconventional feed ingredients. Principles of compounding and mixing of feeds. Visit to farms. Formulation of balance diets for horses, dogs and cats. Feeds and feeding schedule of zoo animals and birds-diet charts.

ANNUAL EXAMINATION

PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
THEORY			
Paper-I	1 and 2	100	20
Paper-II	3 and 4	100	20
PRACTICAL			
Paper-I	1and 2	60	20
Paper - II	3 and 4	60	20

(viii) **DEPARTMENT OF VETERINARY PHARMACOLOGY AND TOXICOLOGY**

VETERINARY PHARMACOLOGY **Credit Hours: 4+1**

THEORY

UNIT-1 (GENERAL PHARMACOLOGY)

Introduction, historical development, branches and scope of Pharmacology. Sources and nature of drugs. Pharmacological terms and definitions, nomenclature of drugs. Principles of drug activity: Pharmacokinetics - Routes of drug administration, absorption, distribution, biotransformation and excretion of drugs. Pharmacodynamics - Concept of drug and receptor, dose-response relationship, terms related to drug activity and factors modifying the drug effect and dosage. Adverse drug reactions, drug interactions.

UNIT-2 (DRUGS ACTING ON AUTONOMIC NERVOUS SYSTEM)

Neurohumoral transmission, Pharmacology of neurotransmitters. Adrenoceptors agonists and antagonists, adrenergic neuron blockers, cholinoceptor agonists and antagonists.

Autacoids: Histamine, histamine analogues and antihistaminic agents, 5-Hydroxytryptamine and its agonists and antagonists, eicosanoids, platelet activating factors, angiotensin, bradykinin and kallidin.

UNIT-3 (DRUGS ACTING ON CENTRAL NERVOUS SYSTEM)

Classification of drugs acting on CNS. History, mechanism and stages of general anaesthesia.

Inhalant, intravenous and dissociative anaesthetics. Hypnotics and sedatives; psychotropic drugs, anticonvulsants, opioid analgesics, non-steroidal anti-inflammatory drugs, analeptics and other CNS stimulants. Drugs acting on somatic nervous system: Local anaesthetics, muscle relaxants. Euthanizing agents.

UNIT-4 (DRUGS ACTING ON DIFFERENT BODY SYSTEMS)

Drugs acting on digestive system: Stomachics, antacids and antiulcers, prokinetics, carminatives, antizymotics, emetics, antiemetics, purgatives, antidiarrhoeals, choleretics and cholagogues. Rumen pharmacology.

Drugs acting on cardiovascular system: Cardiotonics and cardiac stimulants, antiarrhythmic drugs, vasodilators and antihypertensive agents, haematopoietic drugs, coagulants and anticoagulants.

Drugs acting on respiratory system: Expectorants and antitussives, respiratory stimulants, bronchodilators and mucolytics.

Drugs acting on urogenital system: Diuretics, drugs affecting urinary pH and tubular transport of drugs, ecbolics and tocolytics.

Pharmacological basis of fluid therapy. Pharmacotherapeutics of hormones. Drugs acting on skin and mucous membranes: Emollients, demulcents and counter irritants.

UNIT-5 (VETERINARY CHEMOTHERAPY)

Introduction and historical developments of chemotherapy. Antimicrobial agents: Classification, general principles in antimicrobial chemotherapy, antimicrobial resistance, combined antimicrobial therapy. Sulphonamides and their combination with diaminopyrimidines. Penicillins, cephalopsorins, cephamycins and other beta lactams, beta lactamase inhibitors. Aminoglycosides and aminocyclitols, tetracyclines, amphenicols (chloramphenicol, thiamphenicol, florfenicol), macrolides, quinolones and fluoroquinolones, polypeptides (polymixins, bacitracin) and glycopeptide antibiotics, Miscellaneous agents: Lincosamides, novobiocin, virginiamycin, tiamulin, nitrofurans and methenamine, Antitubercular drugs. Antifungal agents: Topical and systemic agents including anti-fungal antibiotics. Antiviral and anticancer agents. Anthelmintics: Drugs used against nematodes, cestodes, trematodes. Antiprotozoal agents: Drugs used in trypanosomosis, theileriosis, babesiosis, coccidiosis, amoebiosis, giardiosis and trichomoniasis. Ectoparasiticides. Antiseptics and disinfectants. Pharmacology of drugs of abuse in animals.

Pharmacology of indigenous medicinal plants: Scientific name, common name, active principles, pharmacological actions and therapeutic uses of Ginger, ocimum, neem, piper longum, withania, leptadenia, tinospora, embilica, eucalyptus, glycerrhiza, trichospermum, curcuma, adhantoda, butea, aloes, sena, rheubarb, catechu etc.

UNIT-6 (VETERINARY TOXICOLOGY)

General Toxicology: Definitions, history of toxicology, fundamentals and scope of toxicology. Sources and classification of toxicants, factors modifying toxicity, general approaches to diagnosis and treatment of poisoning.

Toxicity caused by metals and non-metals: Arsenic, lead, mercury, copper, molybdenum, selenium, phosphorus, fluoride, nitratesor nitrites, chlorate, common salt and urea.

Poisonous plants: Cyanogenetic plants, abrus, ipomoea, datura, nux vomica, castor, oxalate producing plants, plants causing thiamine deficiency, plants causing photosensitization and lathyrism, oleander, and cotton.

Toxicity caused by Agrochemicals: Insecticides - Chlorinated hydrocarbons, organophosphates, carbamates, pyrethroids, newer insecticides. Herbicides, fungicides and rodenticides.

Fungal and bacterial toxins: Aflatoxins, rubratoxin, ochratoxin, sporidesmin, citrinin, F-2 toxin, trichothecenes, ergot, fescue, botulinum toxin and tetanus toxin.

Venomous bites and stings: Snake, scorpion, spider, bees and wasp, toad and fishes (puffer fish, shellfish). Toxicity caused by food additives and preservatives. Drug and pesticide residue toxicology. Environmental pollutants: Air and water pollutants. Concept of radiation hazards.

PRACTICAL

UNIT-1 (GENERAL PHARMACOLOGY)

Handling and washing of laboratory wares. Handling and operation of commonly used laboratory instruments. Concept of good laboratory practices (GLP). Pharmacy appliances. Principles of compounding and dispensing. Metrology, systems of weights and measures, pharmacy calculations. Pharmaceutical processes. Pharmaceutical dosage forms. Prescription writing, incompatibilities. Drug standards and regulations, custody of poisons. Compounding and dispensing of powders, ointments, mixtures, liniments, lotions, liquors, tinctures, emulsions, and electuaries.

UNIT-2 (ANS PHARMACOLOGY)

Demonstration of the action of autonomic agonists and antagonists on intact or isolated preparations of the laboratory animals. Simulated animal experiments should be preferred over use of live animals. The lab for simulated experiments should be established within a span of one year.

UNIT-3 (CNS PHARMACOLOGY)

Handling of lab animals. Regulatory guidelines for use of lab animals. Demonstration of the effect of CNS active drugs and local anaesthetics in laboratory animals. The lab for simulated experiments should be established within a span of one year.

UNIT-4 (VETERINARY CHEMOTHERAPY)

Demonstration of various chemotherapeutic agents and their dosage forms. Demonstration of antibiotic sensitivity test and its interpretation.

UNIT-5 (VETERINARY TOXICOLOGY)

Collection, preservation and dispatch of material for toxicological analysis. General principles for toxicological analysis. Detection of heavy metalsor non-metalsor plant poisons. Demonstration of agrochemical toxicity and its antidotal therapy via simulation methods. Demonstration of toxic weeds and plants of local area. Methods of calculation of median lethal dose (LD_{50})or maximum tolerated dose (MTD).

ANNUAL EXAMINATION

PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
THEORY			
Paper-I	1, 2, 3 and 4	100	20
Paper-II	5 and 6	100	20
PRACTICAL			
Paper-I	1 and 2	60	20
Paper - II	3, 4 and 5	60	20

(ix) **DEPARTMENT OF VETERINARY PUBLIC HEALTH AND EPIDEMIOLOGY**

DEPARTMENT OF VETERINARY PUBLIC HEALTH AND EPIDEMIOLOGY

Credit Hours: 3+1=4

THEORY

UNIT-1 (VETERINARY PUBLIC HEALTH AND FOOD SAFETY)

Aims and scope of Veterinary Public Health. Role of veterinarians in public health. One Health concept and initiatives. Veterinary Public Health administration. Sources of contamination. Principles and concepts of food hygiene and safety. Milk hygiene in relation to public health. Hygienic and safe milk production practices including steps for prevention and control of milk contamination, adulterants, antimicrobial residues, agrochemicals, subclinical mastitisorudder infections

etc.. Microbial flora of milk and milk products. Milk plant and dairy equipment hygiene. Quality control of milk and milk products. Milk hygiene practices in India and other countries.

Elements of meat inspection and meat hygiene practices. Pathological conditions associated with the transport of food animals. Hygiene in abattoirs and meat plants. Detection of conditionsor diseases and judgements during ante mortem and post mortem inspection. Examination of lymph nodes. Meat as a source of disease transmission. Sources of contamination of meat and methods of carcass decontamination. Speciation of meat. Animal welfare and public health issues. Classification of low risk and high risk material generated in an abattoir and its hygienic disposal. Inspection of poultry for human consumption. Occupational health hazards in abattoir and meat plants.

Foodborne infections and intoxications associated with foods of animal origin. Toxic residues (pesticides, antibiotics, metals and hormones) in foods and associated health hazards. Types of biohazards. Hazard analysis and critical control points (HACCP) system. Importance of ISO 9000 and 14000 series in meat industry. Risk analysis, assessment and management. International food safety standards: World Organisation for Animal Health (OIE), World Trade Organization (WTO) agreements and Codex Alimentarius Commission. Sanitary and phytosanitary measures in relation to foods of animal origin. Food Safety and Standards Act and Regulations. Role of Food Safety and Standards Authority of India (FSSAI), Bureau of Indian Standards (BIS) and other national agencies.

UNIT-2 (VETERINARY EPIDEMIOLOGY)

Definitions, components and aims of epidemiology. Factors influencing occurrence of livestock diseases and animal production. Determinants of disease. Transmission and maintenance of infections. Ecology of disease. Measures and patterns of disease occurrence. Survey and surveillance of animal diseases and related parameters. Epidemiological methods- Descriptive, analytical, experimental, theoretical, serological and molecular. Animal disease forecasting. Strategies of disease management: prevention, control and biosecurity. Economics of animal diseases. National and international regulations on livestock diseases. Role of OIE and laws on international trade of animals and animal products.

UNIT-3 (ZOONOTIC DISEASES)

Definition, history and socio-economic impact of zoonotic diseases. Classification of zoonoses and approaches to their management. Multisectoral approach for zoonoses prevention and control. Emerging, re-emerging and occupational zoonoses. Role of domestic, wild, pet and laboratory animals and birds in transmission of zoonoses. Zoonotic pathogens as agents of bioterrorism. Epidemiology, clinical manifestations and management of the following zoonoses: Rabies, Japanese encephalitis, influenza, Kyasanur forest disease, Crimean Congo haemorrhagic fever, Nipah encephalitis, Ebola virus infection, anthrax, brucellosis, tuberculosis, leptospirosis, listeriosis, plague, glanders, Q fever, rickettsiosis, chlamydiosis, taeniasis, cysticercosis, hydatidosis, larva migrans, diphyllobothriasis, trichinellosis, toxoplasmosis, fasciolosis, paragonimiasis, sarcocystosis, cryptosporidiosis, amoebiasis, giardiasis, leishmaniasis, superficial and systemic mycosis and prion diseases. Foodborne bacterial zoonoses: salmonellosis, *E. coli* infection, staphylococcal gastroenteritis, clostridial food poisoning, campylobacteriosis etc.

UNIT-4 (ENVIRONMENTAL HYGIENE)

Scope and importance. Ecosystem: Components structure and functions. Biodiversity: uses, threats and conservation. Natural resources: types, uses and abuses. Environmental contaminants in food chain-bioaccumulation, biomagnification and persistent organic pollutants. Environmental pollution: Sources, nature of pollutants, effects on animal and human health. Rural and urban pollution. Air pollution, sources and hazard. Air pollution in animal houses, effect on health and productivity. Airborne diseases – Classification, health hazard, prevention and control. Water-Sources, contamination & their prevention. Water qualities- Physical, chemical, bacteriological and radiological. Water purification methods for community water supplies. Waterborne diseases – Classification, health hazard, prevention and control. Soil, marine and thermal pollution- Classification, sources, hazard, prevention and control. Noise pollution – Sources, hazards, prevention and control. Nuclear hazardsor radiological hazard-Types, hazards and radiation protection. National rules and legislations related to environmental pollution and role of pollution control board in India. Biosafety: Importance, classification and biosafety measures for prevention of risk hazards. Disaster management and mitigation. Solid and liquid waste management at farms and biomedical waste management. Sanitation and disinfection of farm and hospital environment in veterinary public practice for infection control. Global warming and greenhouse effect- Definition, greenhouse gases, impact of climate change and international treatiesorprotocols. Management of waste from animal industries. Stray and fallen animal management and carcass disposal. Vector and reservoir control.

PRACTICAL

UNIT-1 (VETERINARY PUBLIC HEALTH AND FOOD SAFETY)

Collection of samples for chemical and bacteriological examination. Grading of milk by dye reduction test, direct microscopic examination and standard plate count. Quality assurance tests for processed milk and milk products. Tests for plant sanitation-Air, water and equipment. Microbiological examination of raw milk, pasteurized milk, milk products, meat, meat products and eggs-standard plate count, coliform count, enterococcal count, psychrophilic and psychrotophic

organisms, thermophilic bacteria and yeast and mold count. Detection of organisms of public health significance from food products by techniques. Tests for detection of mastitic milk. Ante-mortem and post-mortem inspection of food animals. Demonstrationordetection of toxic chemicals and contaminants of public significance from milk and meat. Detection of antimicrobial residues in milk and meat by microbiological and analytical techniques. Demonstration of speciation of meat.

UNIT-2 (VETERINARY EPIDEMIOLOGY)

Sampling methods for epidemiological studies. Measurement of disease frequencies. Sources, storage, retrieval and representation of disease informationordata. Demonstration of selected software programmesor models. Evaluation of sensitivity and specificity of diagnostic tests by epidemiological methods. Determination of associations of disease and hypothesized causal factors. Survey of an animal disease on a farm. Epidemiological investigation of disease outbreaks.

UNIT-3 (ZOONOTIC DISEASES)

Detection, isolation and identification of important pathogens of zoonotic importance from animal, human and environmental sources including foods of animal origin. Detection of zoonotic diseases by serological, molecular and hypersensitivity tests. Study of probable association of human diasease conditions with animal diseases present in an area. Study of rural environment and health status of rural community.

UNIT-4 (ENVIRONMENTAL HYGIENE)

Sampling methods for testing quality of air, water, soil and other environmental sources. Physical, chemical and microbiological examination of water. Estimation of residual chlorine and chlorine demand. Isolation & identification of pathogens from air, water and other environmental sources. Disinfection of animal houses. Determination of efficacy of disinfectants – Phenol coefficient, MIC and MBC. Demonstrationorvisit to water purification system. Demonstration of various ventilation systems in animal houses and specialized laboratories. Demonstration of toxic residues in water and other environmental sources. Visit to local polluted site and documentation of local environmental problems – like dumping grounds, local slum areas, crowded localities etc.

ANNUAL EXAMINATION

PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
THEORY			
Paper-I	1 and 2	100	20
Paper-II	3 and 4	100	20
PRACTICAL			
Paper-I	1 and 2	60	20
Paper - II	3 and 4	60	20

(x) **DEPARTMENT OF VETERINARY PARASITOLOGY**

VETERINARY PARASITOLOGY **Credit Hours: 3+2**

THEORY

UNIT- 1 (GENERAL VETERINARY PARASITOLOGY)

Parasitology: Introduction, Important historical landmarks, importance of parasitology in veterinary curriculum. Types of parasites (ecto, endo, hyper, obligatory, facultative, stenoxenous, euryxenous, monoxenous, heteroxenous, histozoic, coelozoic, temporary, permanent, pseudo, aberrant, incidental, opportunistic, zoonotic, protelean etc.). Types of hosts (definitive, intermediate, reservoir, paratenic, natural, unnatural, etc.) and vectors. Types of animal associations (symbiosis, phoresy, commensalism, parasitism, mutualism and predatorism). Modes of transmission of parasites and methods of dissemination of the infective stages of the parasites. International Code of Zoological Nomenclature: Rules and regulations, Standard Nomenclature of Animal Parasitic Diseases (SNOAPAD). Immunity against parasitic infectionsorinfestations, natural and acquired immunity, premunity, sterile immunity, autoimmunity, passive immunity, concomitant immunity and immune evasion by parasites. General harmful effects of parasites including various tissue reactions caused by parasites. General control measures against parasites. Characters of various phyla of parasites.

UNIT-2 (TREMATODES AND CESTODES OF VETERINARY IMPORTANCE)

Trematodes: Introduction, general account and classification, general life cycle of trematodes with morphological features of their developmental stages. Important morphological features, life cycles, modes of transmission,

pathogenesis, epidemiology, diagnosis and general control measures (including chemo- and immuno-prophylaxis) of the following trematode parasites: Liver flukes (*Fasciola, Dicrocoelium* and *Opisthorchis*), intestinal flukes (*Fasciolopsis*). Blood flukes causing nasal schistosomosis (*Schistosoma nasalis*), visceral schistosomosis (*S. spindale, S. indicum, S. incognitum*) and cercarial dermatitis. Paramphistomes (*Paramphistomum, Cotylophoron, Calicophoron, Gigantocotyle*, *Gastrothylax, Fischoederius,Carmyerius, Gastrodiscus, Gastrodiscoides* and *Pseudodiscus*). *Paragonimus*, *Prosthogonimus* and Echinostomes.

Cestodes: Introduction, general account and classification, general life cycle of cestodes with morphological features of their developmental stages (Metacestodes). Important morphological features, life cycles, modes of transmission, pathogenesis, epidemiology, diagnosis and management of the following cestode parasites: Equine tape worms (*Anoplocephala, Paranoplocephala*) and ruminant tape worms (*Moniezia, Avitellina, Stile*sia,*Thysaniezia*). Dog tape worms (*Dipylidium, Taenia, Echinococcus*). Poultry tape worms (*Davainea, Cotugnia, Raillietina, Amoebotaenia, Choanotaenia* and *Hymenolepis.* Broad fish tapeworm (*Diphyllobothrium)* and *Spirometra.*

UNIT-3 (NEMATODES OF VETERINARY IMPORTANCE)

Nematodes: Introduction, general account and classification, general life cycle of nematodes with morphological features of their developmental stages. Important morphological features, life cycles, modes of transmission, pathogenesis, epidemiology, diagnosis and management of the following nematode parasites: *Ascaris, Parascaris, Toxocara, Toxascaris, Ascaridia*, *Heterakis* and *Oxyuris. Strongyloides, Strongylus, Chabertia, Syngamus* and *Oesophagostomum*. Kidney worms (*Stephanurus* and *Dioctophyma*), hook worms (*Ancylostoma* and *Bunostomum*). *Trichostrongylus, Ostertagia, Cooperia, Nematodirus*, *Haemonchus* and *Mecistocirrus*. *Habronema, Draschia, Thelazia, Spirocerca, Gongylonema*, *Physaloptera* and *Gnathostoma. Dirofilaria, Parafilaria, Onchocerca, Setaria* and *Stephanofilaria*. Lung worms (*Dictyocaulus, Muellerius, Protostrongylus* and *Metastrongylus*). Guinea worm (*Dracunculus*), *Trichinella*, *Trichuris*, *Capillaria.* Acanthocephala (*Macracanthorhynchus*). Study of anthelmintic resistance and its types.

UNIT-4 (ARTHROPODS OF VETERINARY IMPORTANCE)

Arthropods: Introduction, general account and classification, general life cycle of arthropods with morphological features of their developmental stages. Important morphological features, general bionomics, life cycle, vector potentiality, pathogenesis and control of following arthropods affecting animals and birds: Bugs (*Cimex).* Biting midges (*Culicoides*), black flies (*Simulium*), sandflies (*Phlebotomus*), mosquitoes (*Culex, Anopheles* and *Aedes*). Horse flies (*Tabanus*), *Haematopota* and *Chrysops*. *Musca*, *Stomoxy*s, *Haematobia* and *Sarcophaga.* Warbles (*Hypoderma*), stomach bots (*Gasterophilus,Cobboldia*), nasal bots (*Oestrus ovis,Cephalopina*), Bottle flies (*Calliphora, Lucilia, Chrysomya*), myiasis. *Hippobosca*, *Melophagus, Pseudolynchia.* Lice (*Haematopinus*, *Linognathus*, *Trichodectes*, *Damalinia*, *Menopon*, *Lipeurus*, *Menacanthus* and *Heterodoxus*). Fleas (*Ctenocephalides*, *Echidnophaga, Xenopsylla, Pulex*). Arachnids : General account, soft ticks (*Argas*, *Ornithodoros* and *Otobius*). Hard ticks (*Hyalomma*, *Haemaphysalis*, *Rhipicephalus (Boophilus)*, *Dermacentor, Ixodes* and *Amblyomma*). Mites (*Dermanyssus*, *Ornithonyssus*, *Demodex*, *Notoedres*, *Sarcoptes*, *Psoroptes*, *Chorioptes, Cnemidocoptes* and *Otodectes*). Pentasomida (*Linguatula*). Study of insecticideoracaricide resistance.

UNIT-5 (PROTOZOA OF VETERINARY IMPORTANCE)

Introduction, general account and classification, general life cycle of protozoa with morphological features of their developmental stages. Differentiation from bacteria and rickettsia. Important morphological features, life cycles, modes of transmission, pathogenesis, epidemiology, diagnosis and general control measures (including chemo- and immuno-prophylaxis) of the following protozoan parasites of veterinary and zoonotic importance : *Leishmania* (Visceral and cutaneous leishmanosis), *Trypanosoma* (*T. evansi, T. theileri, T. equiperdum*). *Trichomonas* (Bovine and avian trichomonosis). *Histomonas* (Black head in turkeys). *Entamoeba*, *Giardia* and *Balantidium* spp, Coccidia and coccidiosis of poultry and domestic animals. Cyst forming coccidia (*Toxoplasma, Sarcocystis* and *Neospora caninum*) and *Cryptosporidium.* Malarial parasites of animals and poultry (*Plasmodium, Haemoproteus* and *Leucocytozoon*). Piroplasms (*Babesia*, *Theileria)* and *Hepatozoon*. *Anaplasma* and *Ehrlichia* Resistance to antiprotozoals.

PRACTICAL

UNIT- 1 (GENERAL VETERINARY PARASITOLOGY)

Demonstration of the types of final and intermediate hosts. Demonstration of different organsortissues of the hosts affected with endo-and ectoparasites. Visit to Post Mortem Hall to acquaint with different organs of animals affected with parasites. Demonstration of specific parasitic lesions caused by endo- and ectoparasites. Faecal examination techniques, egg counts, examination of faecal samples for the trematode, cestode, nematode eggs and protozoan cystsoroocystsortrophozoites. Demonstration of faecal culturing techniques. Methods of collection, fixation, preservation, staining and mounting of various types of parasites. Blood smear preparation: Wet, thin and thick smears. Staining of blood smears for demonstration of microfilariae and haemoprotozoan parasites. Collection and examination of skin scrapings for mites. Examination of urine samples and nasal washings for parasitic findings.

UNIT-2 (TREMATODES AND CESTODES OF VETERINARY IMPORTANCE)

Study of morphological characters of adults and developmental stages of the following trematodes and cestodes: *Fasciola, Fasciolopsis, Dicrocoelium, Opisthorchis, Schistosoma*, *Paragonimus, Prosthogonimus,* Echinostomes, Paramphistomes (*Paramphistomum, Cotylophoron, Gigantocotyle*, *Gastrothylax, Fischoederius, Gastrodiscus, Gastrodiscoides* and *Pseudodiscus*). *Anoplocephala, Paranoplocephala, Moniezia, Avitellina, Stilesia, Davainea, Cotugnia, Raillietina, Amoebotaenia*, *Choanotaenia, Hymenolepis, Dipylidium, Taenia, Echinococcus, Diphyllobothrium* and *Spirometra.* Demonstration of gross and microscopic lesions of parasites.

UNIT-3 (NEMATODES OF VETERINARY IMPORTANCE)

Study of morphological characters of adults and developmental stages of the following nematodes : *Ascaris, Parascaris, Toxocara, Toxascaris, Ascaridia*, *Heterakis, Oxyuris, Strongyloides, Strongylus, Chabertia, Syngamus* and *Oesophagostomum. Stephanurus, Dioctophyma, Ancylostoma, Bunostomum, Ostertagia, Trichostrongylus, Cooperia, Nematodirus, Haemonchus* and *Mecistocirrus. Habronema, Draschia, Thelazia, Spirocerca, Gongylonema, Physaloptera, Gnathostoma*, *Dirofilaria, Parafilaria, Onchocerca, Setaria, Stephanofilaria*, *Dictyocaulus, Muellerius, Protostrongylus, Metastrongylus, Dracunculus, Trichinella, Trichuris, Capillaria* and *Macracanthorhynchus.* Demonstration of gross and microscopic lesions of parasites.

UNIT-4 (ARTHROPODS OF VETERINARY IMPORTANCE)

Study of morphological characters of adults and life cycle stages of the following arthropods : *Culicoides, Simulium, Phlebotomus, Cimex, Culex, Anopheles, Aedes*, *Tabanus*, *Haematopota* and *Chrysops Musca, Stomoxys, Haematobia, Gasterophilus, Hypoderma, Oestrus ovis*, bottle flies, *Sarchophaga*, *Hippobosca, Melophagus* and *Pseudolynchia*. *Trichodectes, Menopon, Menacanthus, Lipeurus, Haematopinus, Linognathus* and *Damalinia Xenopsylla, Ctenocephalides* and *Echidnophaga.Argas, Ornithodoros, Otobius, Ixodes , Hyalomma, Rhipicephalus (Boophilus*), *Haemaphysalis, Dermacentor* and *Amblyomma*. *Dermanyssus, Ornithonyssus, Demodex, Notoedres, Sarcoptes*, *Psoroptes*, *Chorioptes, Cnemidocoptes, Otodectes* and *Pentastomida.* Demonstration of gross and microscopic lesions of parasites.

UNIT-5 (PROTOZOA OF VETERINARY IMPORTANCE)

Study of morphological characters of different stages of following protozoan parasites: *Leishmania, Trypanosoma, Trichomonas*, *Histomonas, Entamoeba, Balantidium, Giardia*, *Eimeria, Isospora, Sarcocystis , Toxoplasma* and *Cryptosporidium. Plasmodium, Haemoproteus* and *Leucocytozoon. Babesia, Theileria* and *Hepatozoon,* Rickettsial organism *Anaplasma* and *Ehrlichia*. Demonstration of formol ether and Ziehl-Neelson's staining techniques and other faecal examination techniques. Diagnosis of intestinal protozoan infections by iodine and eosin stain methods. Demonstration of gross and microscopic lesions due to protozoan parasites. Demonstration of *Haemoproteus columbae* in the blood. Demonstration of sporulation for diagnosis of coccidian parasites.

ANNUAL EXAMINATION

PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
THEORY			
Paper-I	1, 2 and 3	100	20
Paper-II	4 and 5	100	20
PRACTICAL			
Paper-I	1, 2 and 3	60	20
Paper - II	4 and 5	60	20

(xi) **DEPARTMENT OF LIVESTOCK PRODUCTS TECHNOLOGY**

LIVESTOCK PRODUCTS TECHNOLOGY **Credit Hours: 2+1=3**

THEORY

UNIT-1 (MILK AND MILK PRODUCTS TECHNOLOGY)

Retrospect and prospects of milk industry in India. Layout of milk processing plant and its management. Composition and nutritive value of milk and factors affecting composition of milk. Physico-chemical properties of milk. Microbiological deterioration of milk and milk products. Collection, chilling, standardization, pasteurization, UHT treatment, homogenization, bactofugation. Dried, dehydrated and fermented milk. Introduction to functional milk

products. Preparation of cream, butter, paneer or channa, ghee, khoa, lassi, dahi, ice-cream, mozzarella cheese and dairy byproducts. Common defects of milk products and their remedial measures. Packaging, transportation, storage and distribution of milk and milk products. Good manufacturing practices and implementation of HACCP in milk plant. Organic milk products. Food safety standards for milk and milk products. Cleaning and sanitation in milk plant. Dairy effluent management

UNIT-2 (WOOL SCIENCE)

Introduction to wool, fur, pelt and specialty fibers with respect to processing industry. Glossary of terms of wool processing. Basic structure and development of wool follicle. Post shearing operations of wool, classification and grading of wool, physical and chemical properties of wool. Impurity of wool, factors influencing the quality of wool. Brief outline of processing of wool.

UNIT-3 (ABATTOIR PRACTICES AND ANIMAL BYPRODUCTS TECHNOLOGY)

Layout and management of rural, urban and modern abattoirs. HACCP concepts in abattoir management. FSSA standards on organization and layout of abattoirs. Animal welfare and pre-slaughter care, handling and transport of meat animals including poultry. Procedures of Ante-mortem and post mortem examination of meat animals. Slaughtering and dressing of meat animals and birds. Emergency and casualty slaughter. Evaluation, grading and fabrication of dressed carcasses including poultry. Abattoir byproducts; rendering, meat, bone, glue, gelatin, fat and byproducts of pharmaceutical value. Skin and hides; methods of flaying, defects, preservation and tanning. Treatment of condemned meat and carcasses. Management of effluent emanating from abattoir.

UNIT-4 (MEAT SCIENCE)

Prospect of meat industry in India. Structure and composition of muscle (including poultry muscle). Conversion of muscle to meat. Nutritive value of meat. Fraudulent substitution of meat. Preservation of meat and poultry; drying, salting, curing, smoking, chilling, freezing, canning, irradiation and chemicals. Ageing of meat. Modern processing technologies of meat and meat products. Packaging of meat and meat products. Formulation and development of meat; kabab, sausages, meat balls or patties, tandoori chicken, soup, pickles. Fermentation of meat products. Physico-chemical and microbiological quality of meat and their products. Basics of sensory evaluation of meat products. Nutritive value, preservation, packaging of egg and egg products. Laws governing nationalorinternational trade in meat and meat products. Organic and genetically modified meat and poultry products.

PRACTICAL

UNIT-1 (MILK AND MILK PRODUCTS TECHNOLOGY)

Sampling of milk. Eestimation of fat, solid not fat (SNF) and total solids. Platform tests. Cream separation. Detection of adulteration of milk. Determination of efficiency of pasteurization. Preparation of milk products like ghee, paneer or channa, khoa, ice-cream or kulfi, milk beverages. Visit to modern milk processing and milk products manufacturing plants.

UNIT-2 (WOOL SCIENCE)

Wool sampling techniques. Tests for identification of wool; determination of fleece density, fiber diameter, staple length, crimp and medulation percentage. Scouringorclean fleece yield.

UNIT-3 (ABATTOIR PRACTICES AND ANIMAL BYPRODUCTS TECHNOLOGY)

Methods of ritual and humane slaughter, flaying and dressing of food animals including poultry. Carcass evaluation. Determination of meat yield, dressing percentage, meat bone ratio and cut up parts. Preparation of different abattoir byproducts. Visit to slaughterhousesor meat plants.

UNIT-4 (MEAT SCIENCE)

Packaging of meat, poultry and shell eggs and their products. Estimation of deteriorative changes in meat and meat products. Preparation of comminuted and non comminuted meat and poultry products. Evaluation of external and internal egg quality and preservation technique of eggs

ANNUAL EXAMINATION

PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
THEORY			
Paper-I	1 and 2	100	20
Paper-II	3 and 4	100	20

PRACTICAL			
Paper-I	1and 2	60	20
Paper - II	3 and 4	60	20

(xii) **DEPARTMENT OF VETERINARY AND ANIMAL HUSBANDRY EXTENSION EDUCATION**

VETERINARY AND ANIMAL HUSBANDRY EXTENSION EDUCATION Credit Hours: 3+1

THEORY

UNIT-1 (LIVESTOCK BASED LIVELIHOODS AND THEIR EVOLUTION)

History of domestication and their social dimensions. Evolution and relationship between agriculture and animal husbandry. Farming and characteristics of farming in India. Classification of farming, types and systems. Peasant farming, cooperative farming, collective farming, contract farming, estate farming, organic farming, capitalistic farming, small-scale farming, large-scale farming, intensive, extensive farming, specialized, diversified, mixed, integrated and dry land farming. Role of animals in the contemporary society.

UNIT-2 (EXTENSION EDUCATION AND DEVELOPMENT)

Early extension efforts in India. Types of education: Formal, non-formal and informal education. Extension education: Concept, levels, objectives and dimensions. Principles, philosophy and functions of extension education. Teaching-learning process and steps in extension teaching. Concept of need and its types. Rural development - Concept, significance and importance of rural development programmes for poverty alleviation. Problems and Issues in development. Panchayati Raj System.

UNIT-3 (RURAL SOCIOLOGY IN VETERINARY EXTENSION)

Concept of sociology and rural sociology in animal husbandry extension. Culture: definition, elements, change, impact on production systems. Basic sociological concepts - society, community and association. Rural society: characteristics and differences among society, community and culture. Characteristics and differences among tribal, rural and urban communities. Social control: concept and means of social control (techniques, folkways, taboos, mores and laws). Social stratification: definition, forms and characteristics (caste system and class system). Social institutions in rural society: Social, economic, political, religious and educational (definition, composition and function). Social change: concept, importance and factors. Social groups: different groups, classification of social groups and their characteristics. Leadership: definition, functions of leader, types of rural leaders, Key communicators and their role in the animal husbandry extension.

UNIT-4 (TRANSFER OF TECHNOLOGY FOR LIVESTOCK DEVELOPMENT)

Technology- Concept, generation process, application, merits and de-merits. Adoption and diffusion of innovations, stages of adoption, adopter categories, innovation decision process, attributes of innovations, diffusion process, factors affecting adoption and diffusion processes. Programme planning- principles, objectives and steps. Evaluation of extension programme, constraints in the adoption of scientific animal husbandry practices. Role of extension agents in diffusion of livestock innovations. Cattle and buffalo improvement programmes: Key Village Scheme, Intensive Cattle Development Project, Gosadan and Gaushala. Dairy development programmes: concept of cooperation, Rochdale principles of cooperation, objectives of cooperative, Amul pattern of dairy cooperative system and Operation Flood. Transfer of technology projects of Indian Council of Agricultural Research (ICAR): Krishi Vigyan Kendra (KVK), Agricultural Technology Information Centre (ATIC), Agricultural Technology Management Agency (ATMA), National Agricultural Innovation Project (NAIP), Rashtriya Krishi Vikas Yojana (RKVY) etc. Different ongoing central and state government animal husbandry development programmes being run related to sheep, goat, poultry, piggery, fodder production etc.

UNIT-5 (COMMUNICATION AND EXTENSION TEACHING METHODS)

Communication and its functions. Basic concepts: communication fidelity, communication gap, time lag in communication, empathy, homophily and heterophily, propaganda, publicity, persuasion and development communication. Types of communication: Intrapersonal, interpersonal, verbal, non- verbal, vertical, horizontal, organizational communication etc. Elements of communication: Communicator, message, channel, treatment of message, audience, and audience response (feedback). Barriers of communication. Individual contact methods: Farm and home visit, farmer's call, personal letter, adaptive or minikit trial, farm clinic etc. Group contact methods: Result demonstration, method demonstration, group meeting, training, field day or farmers' day, study tour etc. Mass contact methods: Farm publications (leaflet, folder, pamphlet, booklet, bulletin, farm magazine, newsletter etc.), mass meeting, campaign, exhibition, newspaper, radio, television, mobile short message service. Selection and use of extension teaching methods.

UNIT-6 (LIVESTOCK ECONOMICS AND MARKETING)

Introduction to Economics and Livestock Economics: definition and scope (production, consumption, exchange and distribution). Basic concepts- wants, goods, wealth, utility, price, value, assets, capital, money, income etc. Important features of land, labour, capital and organization. Theories of demand, supply and cost. Theories of production (law of diminishing return, increasing return, constant return and return to scale). Concept of market: market, market structure and classification of markets. Market price and normal price, price determination under perfect competition in short and long run. Marketing functions: meaning and their classification (packaging, transportation, grading, standardization, storage and warehousing, processing and value addition, buying and selling, market information, financing, risk bearing, minimization of risks (speculation and hedging). Marketing agencies, institutions and channels for livestock and livestock products. Government interventions and role in marketing of livestock and livestock products. External trade in livestock products, recent policies on trade and international trade agreements and their implications in livestock sector.

UNIT-7 (LIVESTOCK ENTREPRENEURSHIP)

Definition of entrepreneur, entrepreneurship, enterprise and manager. Difference between entrepreneur and entrepreneurship, entrepreneur and enterprise, entrepreneur and manager. Theories of entrepreneurship: Sociological theory, economic theory, cultural theory, psychological theory. Types, characteristics and functions of an entrepreneur. Forms of entrepreneurship: (Sole proprietorship, partnership, corporation, cooperative, joint stock company, Private and Public Limited Company). Introduction to financial management: concept, function, analysis of financial statement, sources of capital (banks, venture capitals, etc.). Project appraisal- Introduction, importance, techno-economic feasibility, criteria of project evaluation (discounted and non-discounted), capital budgeting, etc. Business plan for enterprise. Institutions promoting entrepreneurship in India. Entrepreneurship development programmes. Accounting: objectives, common terms. Personnel management-identification of work, job analysis, division of labour etc. Resource management- organization aspect of livestock farms, resources and procurement of inputs and financial resources, break-even- analysis etc.

UNIT-8 (INFORMATION AND COMMUNICATION TECHNOLOGY)

Strengths and limitations of ICTs application in livestock sector and farmers capacity building. Information kiosk, E-learning, CAD, virtual class room, virtual reality, multi-media etc. Cyber extension- problems and prospects in livestock extension. Computer networking: (LAN, MAN, WAN, Internet, tele-conferencing, tele-text, radio-text, video-text, interactive cable distribution system, satellite communication, internet, www, etc.).

UNIT-9 (CONTEMPORARY ISSUES IN LIVESTOCK ENTERPRISES)

Gender and animal husbandry- definition, difference between gender and sex, role of women in animal husbandry, gender sensitization, importance of gender sensitization in animal husbandry, need for gender analysis, gender budgeting and mainstreaming. Salient features of recent livestock census, livestock insurance scheme, national livestock mission. Sustainability- concept of sustainability of livestock production system (social, environmental and economic challenges faced). Introduction to environmental consequences of livestock rearing. Animal welfare: Introduction to animal welfare, ethics and rights. Importance of animal welfare in the contemporary society. Expectations from veterinary professionals.

PRACTICAL

UNIT-1 Tools of data collection: Preparation of instrument for conducting social survey; Visit to nearby village: Conducting social survey for assessment of farming system and constraints; Data analysis and reporting; Organizing demonstration for farmers; identification of key communicators by Socio-metric method; Familiarization with audio-visual aids; Principle and use of projectors; Preparation of Radio Script Preparation of Television script; Preparation and use of poster; Preparation and use of chart; Preparation and use of flash cards; Preparation and use of farm publications for extension work; Planning and organizing an awareness campaign (Health and Production); Planning and organization of animal health camps; Exercise on rapid rural appraisal (RRA).; Exercise on participatory rural appraisal (PRA) technique; Planning and organization of group discussion.

UNIT-2 Rules of debit and credit in livestock business transactions. Journal Entry and Ledger Posting. Writing of Cash Book. Balancing and preparation of final accounts. Exercise on calculation of depreciation. Visit to commercial enterprises of livestock production. Preparation of dairy entrepreneurial project report. Preparation of sheep and goat entrepreneurial project report. Preparation of poultry entrepreneurial project report. Preparation of piggery or rabbit entrepreneurial project report. Techno-economic feasibility report. Exercise on Break-even analysis. Exercise on BCR, IRR and NPW. Case study of successful entrepreneurial project. Visit to livestock market. Visit to livestock fair. Exercise on economics of diseases

ANNUAL EXAMINATION

PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
THEORY			
Paper-I	**1, 2, 3, 4 and 5**	**100**	**20**
Paper-II	**6, 7, 8,and 9**	**100**	**20**
PRACTICAL			
Paper-I	**1**	**60**	**20**
Paper - II	**2**	**60**	**20**

(xiii) **VETERINARY CLINICAL COMPLEX (VCC)**

VETERINARY CLINICAL PRACTICES-I (Third year) Credit Hours: 0+1

Orientation and understanding the working of Veterinary Clinics including hospital set up, administration and work force management. Doctor client interaction, Orientation to local language or dialector local terminology of the diseases. Registration, filling up registration cards, history taking, handling and restraining of animals. Preliminary clinical examination such as recording of temperature, respiration, pulse, motility of digestive sustem etc. Familiarization and practice of first aid procedures. Practice of collection, labeling, packaging and storage of laboratory samples. Preparation and sterilization of surgical packs, instruments, drapes and operation theaters. Familiarisation with antiseptic dressing techniques and bandaging.

VETERINARY CLINICAL PRACTICES-II (Fourth year) Credit Hours: 0+6

The students shall be Imparted the trainings on rotation basis in the following sections of Veterinary Clinical Complex (VCC):

Ambulatory Section:

Each Veterinary college should adopt five villages where in the health, production and treatment part should be taken care of in a holistic manner.

Handling, examination, diagnosis and treatment of sick animals in the field conditions under the supervision of faculty. Ambulatory Clinics shall be operated by small groups of students and faculty of clinical departments through an equipped ambulatory mobile unit.

Diagnostic Laboratory Section:

Veterinary Clinical Diagnostic Laboratory will be an important component of Teaching Veterinary Clinical Complex that will impart training to students for laboratory evaluation and interpretation of clinical samples leading to definitive diagnosis of diseases. This activity will improve competence of students in examining clinical samples (biochemical, toxicological, pathological, parasitological and bacteriological) at the clinical complex, analyzing and correlating with clinical findings and interpreting the results. Collection labeling, transportation, and preservation of body fluid samples, writing results and report. Interpretation of data in relation to specific diseases. Clinical significance and interpretation of serum glucose, lipids, proteins, blood urea nitrogen, creatinine, uric acid, ketone bodies, bilirubin and electrolytes from samples. Clinical significance and interpretation of examination of urine samples. Clinical evaluation of blood (Haemoglobin, packed cell volume, total erythrocytic count, erythrocytic sedimentation rate, total leukocytic count and differential leukocytic count) from clinical samples. Evaluation of acid-base balance and interpretation. Biochemical aspects of digestive disorders, endocrine functions. Liver, kidney and pancreatic function tests. Role of enzymes for detection of tissue or organ affection. Preparation of microscopic slides from tissue collected for diagnosis and its histopathological interpretation. Examination of biopsy and morbid material for laboratory diagnosis. Laboratory evaluation and diagnosis of samples for parasitic diseases (routine faecal examinations- direct smear method, simple sedimentation and floatation methods, quantitative faecal examination, pastural larval counts). Examination of skin scrapings, examination of blood. Orientation to a clinical Microbiology laboratory, collection, transport and processing of specimens from clinical cases for diagnosis of important bacterial, fungal and viral diseases. Isolation of bacteria from clinical samples, identification of bacteria by Grams staining and culturalor biochemical characteristics. Drug sensitivity and rationale for therapy. Diagnosis of diseases by employing tests like Agar Gel precipitation Test, ELISA etc.

Note: The Laboratory shall run in collaboration with the Department of Pathology and Physiology and Biochemistry. Biochemist appointed in this section will be involved in teaching of students regarding principles of

various diagnostic tests, normal and abnormal values in different species, differential diagnosis, correlating with diseases and rationale of arriving at the conclusion.

Medicine Section:

Orientation and understanding the working of Veterinary Clinics including hospital set up, administration and work force management. Understanding the different methods of record keeping, retrieval, processing, analysis and interpretation of data. Involvement in outpatient department (OPD), Indoor patient, Critical care or intensive care unit, sanitation, practice management etc. Doctor client interaction: Orientation to local language or dialect or local terminology of the diseases.

Registration, filling up registration cards, clinical practice comprising of clinical examination of the patient, with emphasis on history taking, examination techniques- palpation, percussion and auscultation. Familiarization and practice of first aid procedures and emergency medicine. Practice of collection, labeling, packaging and evaluation of laboratory samples. Relating generic and trade names of drugs along with their doses, indications and contraindications to prescribed treatment regimens.

Systematic examination of various systems, recording of clinical observations viz. temperature, respiration, pulse, cardiac sounds, cardiac function, pulmonary function, functional motility of digestive system, routes and techniques of administration of medicaments. Tentative and confirmatory diagnosis and treatment of common clinical cases like pharyngitis, laryngitis, stomatitis, indigestion, gastritis, ruminal impaction, tympany, enteritis, traumatic reticulo-peritonitis, traumatic pericarditis, pneumonia, haemoglobinurea, haematuria. milk fever, ketosis, rickets, osteomalacia, common poisoning, and others clinical cases as reported in the section.

Collection of materials like urine, faeces, skin scraping, blood, milk and other body fluids for laboratory tests. Preparation of case records; follow-up records etc. Readiness to treat and handle causalities and other emergencies in the clinics. Learning and practicing passing of stomach and naso-gastric tube. Screening of livestock or poulty through tests, mass diagnostic campaigns. Vaccination and other disease prevention and control programmes in the field.

Learning the use of various advance non invasive diagnostic aids like Ultrasonography, Opthalmoscope etc.

Practice of feeding of sick animals. Acts and regulations pertaining to generation and disposal of biomedical wastes in veterinary institutions. Biomedical waste generation, handling, storage, sorting, coding, transportation and disposal. Hazards of biomedical waste, and impact of biomedical waste on the environment.

Gynecology and Obstetrics Section

Practice of artificial insemination, pregnancy diagnosis, clinical examination and management of cases of anoestrus, silent oestrus, infertility and conception failure. Treatment of cases of metritis, cervicitis , vaginits etc. Handling and management of cases of retention of placentaorfetal membranes, ante and post partum prolapse of vagina. Examination and handling of cases of dystocia, fetotomy, caesarian etc. Castration of male calves, breeding soundness, evaluation of bulls, ovariohysterectomy and collection of cervical and vaginal mucus for cytology. Rectal examination and vaginal examination of genitalia. Familiarization with common drugs and hormones used in reproductive disorders including infertility, epidural and local anaesthesia for gynaecological cases. Filling of clinical case records and their maintenance.

Surgery and Radiology Section

Familiarization and understanding the use of equipments used in surgical sections of the VCC. Restraining and positioning of different species of animals for examinations, diagnosis and surgical treatment. Prescription of common drugs, their doses and uses in clinical surgical practice. Filling of clinical case records and their maintenance. Preparation and sterilization of surgical packs, instruments, drapes and operation theaters. Passing of stomach tube and gastric tube. Catheterization and urine collection.

Techniques of examination of neuromuscular and skeletal functions, Familiarisation with antiseptic dressing techniques, bandaging, abdomino-centesis, thoracocentesis. Topography anatomy of animals. Radiographic positioning, terminology and interpretation.

Treatment and Management of various surgical conditions including inflammation, wounds, abscess, cysts, tumors, hernia, haematoma, hemorrhage, sinus, fistula, necrosis, gangrene, bum, sprain, tendinits etc. Management and treatment of fractures, dislocations and other affections of joints, facial paralysis, Eye worm and other affections of Eye. Irregular teeth and their rasping, tail amputation, knuckling, upward fixation of patella (medical patellar desmotomy) etc.

Familiarisation with the landmarks for the approach to various visceral organs, thoraco-centesis, abdominocentesis. Rumenotomy, laparotomy, palpation and visualisation of viscera, urethrotomy, castration, vasectomy, caudectomy, thoracotomy, cystotomy, cystorraphy and spleenectomy. Examination of horse for soundness, lameness and preparation of certificate for soundness. Tenotomies, suturing of tendon, shortening of tendon.

Pet Animal Section

Registration, filling up registration cards, history taking. Relating generic and trade names of drugs alongwith their doses, indications and contraindications to prescribed treatment regimens. Familiarization and practice of first aid procedures and emergency medicine. Practice of collection, labeling, packaging and evaluation of laboratory samples. Clinical examination techniques- palpation, percussion and auscultation, systematic examination of various systems, recording of clinical observations viz. temperature, respiration, pulse, cardiac sounds, cardiac function, pulmonary function, functional motility of digestive systems. Routes and techniques of administration of medicaments. Diagnosis and treatment of diseases. Collection of materials like urine, faeces, skin scraping, blood, milk and other body fluids for laboratory tests. Preparation of case records; follow-up records etc. Vaccination and other disease prevention and control programmes. Practice of pregnancy diagnosis, examination of cases of anoestrus, silent oestrus and conception failure. Rectal examination of genitalia, vaginal examination. Epidural and local anaesthesia for gynaecological cases. Resteraining and positioning techniques for examination, diagnosis and surgical treatment. Preparation of surgical packs, sterilization procedures for surgical instruments. Passing of stomach tube and gastric tube. Catheterization and urine collection. Familiarization with antiseptic dressing techniques. Topography anatomy of pet animals. Radiographic positioning and terminology.

The practical component will be dealt with internally. The examination for VCP shall be conducted twice a year i.e. first practical exam after completion of 50% syllabus and the second one, when the course is completed but the second exam shall comprise of entire syllabus. Annual professional examination shall be held after the completion of 100% course content in each subject.

The examination should comprise of following components:

(i) Submission of 10 complete cases each of Surgery, Medicine, Gynaecology

(ii) Case presentation

(iii) Review of treatment of 5 cases

(iv) Written Objective Questions (Surgery, Medicine, Gynaecology

(v) and Lab diognosis)

(vi) Viva

(xiv) **LIVESTOCK FARM COMPLEX**

LIVESTOCK FARM PRACTICES (Third year) Cr. Hr. 0+2

Aim of Livestock farm practices is actual involvement of students in all aspects of animal rearing so that they can rear animals on their own. Hands on training of the students on the overall farm practices of livestock management including cleaning, feeding, watering, grooming, milking, routine health care, record keeping, sanitation, housing, fodder production, preparation of mineral mixture, cost economic of fodder production. Care of pregnant animals, management of parturition, care of neonatal and young stock. Management of broiler, layer farm and hatchery.

One full day per week comprising of six contact hours will be kept entirely for LFP where the students should be divided into small batches on rotational basis wherein they should be actually involved in different activities such as milking, feeding etc.

The practical component will be dealt with internally. The examination for LFC shall be conducted twice a year i.e. first practical exam after completion of 50% syllabus and the second one, when the course is completed but the second exam shall comprise of entire syllabus. Annual professional examination shall be held after the completion of 100% course content in each subject.

The examination should comprise of following components:

(i) Day to day activities

(ii) Record Book

(iii) Written Objective Questions

(iv) Viva Any other suitable component as per conditions

(xv) **DEPARTMENT OF VETERINARY SURGERY AND RADIOLOGY**
VETERINARY SURGERY AND RADIOLOGY **Credit Hours:2+1**

THEORY

UNIT-1(VETERINARY GENERAL SURGERY)

Introduction: Historical perspective, Definitions, classification of surgery, tenets of Halsted. Pre-operative, intra-operative and post-operative considerations: History taking, physical examination, clinico-pathological testing, intra-operative and postoperative care.

Sterilization and disinfection: Definitions, surgical sterilization, various methods of sterilization (Heat, chemical and radiations etc.), disinfections.

Sutures: Definitions, suturing, factors influencing suturing, characteristics of an ideal suture material, types of suture material-absorbable and non-absorbable, surgical knots, various suture patterns-apposition, eversion, inversion and special.

Treatment of acute and chronic inflammation: Use of anti-inflammatory drugs and proteolytic enzymes. Haemostasis (physical and chemical methods, systemic haemostats, surgical diathermy)

Basic surgical affections: Definitions, classification, diagnosis and treatment of abscess, tumour, cyst, hernia, haematoma, necrosis, gangrene, burn and scald, frost bite and surgical affections of muscles, artery and vein, sinus and fistula.

Wounds: Definition, classification, examination and diagnosis, general principles for treatment of aseptic, contaminated and septic wounds, healing and factors affecting wound healing, complications of wounds and their remedies. Surgical infection; their prevention and management: Classification of infection, Introduction to biomaterials and stem cell therapy in wound management

Management of surgical shock. Principles of fluid therapy in surgical patients.

UNIT-2 (VETERINARY ANAESTHESIOLOGY)

Introduction: Development of anaesthesiology, Terminology, classification and indications. General considerations of anaesthesia: Factors affecting anaesthesia and selection of anaesthetic technique, factors modifying uptake, distribution and elimination, patient evaluation, categories of patients according to physical status, selection of anaesthetic agent and patient preparation. Pain and its management in animals Local and regional anaesthesia: Definitions, local anaesthetics, mechanism of action Premedication, properties and use of different preanaesthetics: Uses of premedication, ,

Anticholinergic, sedatives and tranquilizers (Phenothiazine derivatives, Benzodiazepines, Butyrophenones, Narcotic analgesics, Alpha-2 agonists, dosage chart of all the drugs.

General anaesthesia: Definitions, methods of induction of anaesthesia, Intravenous anaesthetics (Total intravenous anaesthesia), monitoring of anaesthesia.

Inhalation anaesthesia: Advantages of inhalant anaesthetics, types of inhalant anaesthetics their properties and effect on various systems, methods of administration of inhalant anaesthesia.

Dissociative anaesthesia: Definition, drugs, clinical application, properties and effect on various body systems.

Avian, wild, zoo, exotics and lab animal anaesthesia and capture myopathy

Anaesthetic emergencies and management, Toxicity, antidote and reversal agents.

UNIT-3 (VETERINARY DIAGNOSTIC IMAGING TECHNIQUES)

Introduction to Radiology-General terminology of radiology, Physical properties of X-Rays, Scope and uses of Radiology, Directional terms for veterinary radiology. Production of X-rays and factors influencing production of X-rays. Radiation hazards and safety measures- Scattered radiation, Biological effects of radiation, Direct and indirect effects, Early and late effects, Radiation sensitivity of different body cells, Radiation protection, General principles of radiation safety, Radiation monitoring devices, Requirement of an ideal radiographic section. The statutory requirements of radiology set-up as per Atomic Energy Regulatory Board of India (AERB). Production of quality diagnostic radiograph. Recording of image- Manual and digital processing of X-ray films, storage and retrieval system. Radiographic Quality and faults- Radiographic detail, density and contrast and factors affecting them, Radiographic faults, their possible causes and prevention. Contrast radiography- Definition, indications, contraindications and types of contrast radiography, Different contrast materials and their use, Techniques of some selected contrast radiography in animals(Barium swallow, Retrograde urography etc) Diagnostic ultrasonography- Principles, indications, techniques and artifacts of ultrasonography. Advanced diagnostic imaging tools- The brief introduction to the use and limits of some advanced imaging techniques, Interventional radiology - CAT scanning, MRI, etc

UNIT-4: (REGIONAL SURGERY-I)

Head and Neck: Affections of lips, cleft palate, tongue, cheek, and their treatment: General anatomical considerations, avulsion of lip, cleft lip ranula, neoplasm and traumatic injuries. Affections of teeth and jaws and their treatment: General anatomical considerations, Developmental abnormalities, dental tartar, periodontal disease, overgrown molars, fractures and luxations of jaw. Affections of nose, face, ear, head and horn and their treatment: General anatomical considerations.

Brachycephalic syndrome, Stenotic nostrils, nasal polyps, empyema of sinuses, fracture and avulsion of horn, horn cancer, aural haematoma, otitis. Affections of eye and their treatment: General anatomical considerations and examination of eye. Affections of eyelids and nictitating membrane and their treatment: entropion, ectropion, chalazion, sty, Cherry eye and traumatic injuries. Affections of lachrymal apparatus, eyeball and orbit and their treatment: occlusion of nasolacrimal duct, traumatic proptosis, panophthalmia, orbital neoplasms, glaucoma, eye worms. Affections of cornea, iris and lens and their treatment: corneal ulcers, corneal opacity, Kerato Conjunctivitis Sicca (KCS), prolapse of iris, corneal dermoid, corneal lacerations and perforations, cataract. Affections of guttural pouch, oesophagus and their treatment: General anatomical considerations. Empyema, tympanitis and Mycosis of guttural pouch, oesophageal diverticulum, megaoesophagus, achalasia and choke. Affections of glands of head and neck and their treatment: General anatomical considerations. Salivary mucocele, sialoliths, salivary fistula Affections of neck and their treatment: General anatomical considerations. Yoke gall, yoke abscess, fistulous withers, poll evil, torticollis. Affections of larynx and Trachea: Tracheal collapse, stenosis, roaring in horses, dorsal entrapment of soft palate in horses and camels, emergency tracheotomy. Management of ocular emergencies. Tracheotomy

UNIT-5: (REGIONAL SURGERY-II)

Thorax and Abdomen: Thoracic affections: Surgical approaches, perforated wounds, pyothorax, pneumothorax, pneumocele, Diaphragmatic hernia and traumatic pericarditis in cattle. Abdominal affections: Surgical approach to the abdomen in different animal species. Common surgical affections of the stomach in dogs and their management: dilation and torsion of stomach, gastric ulcerations, foreign bodies in the stomach, pyloric stenosis. etc Surgical affections of the stomach in large animal and their management: Ruminal impaction, traumatic reticulitis, omasal and abomasal impaction and abomasal displacement. Surgical affections of small intestines and their management: Intestinal obstruction, intussusception and strangulation (volvulus). Techniques of intestinal anastomosis. Surgical affections of large intestine and their management: Caecal dilatation and torsion, rectal prolapse, rectal and perineal tear, recto-vaginal fistula. Surgical affections of anus and perineal region and their management: Atresia-ani, anal stenosis, anal sac impaction. Other surgical affections of abdomen and their management: Perforating wounds and fistulae of abdomen, umbilical hernia, ventral abdominal hernia, inguinal and scrotal hernia, perineal hernia. Urinary system: Urolithiasis and its management. Urolithiasis in small and large animals. Patent urachus, ectopic ureter. Surgical management of equine colic. Genital system: Surgical affections of male genital system and their management, prostatic enlargementor hyperplasiaor neoplasm, Phimosis, paraphimosis, preputial prolapse, penile amputation. Castration, vasectomy, scrotal ablation in large and small animals. Surgical affections of female genital system and their management: Canine transmissible venereal tumour. Ovariohysterectomy and caesarean section. Applications of rigid and flexible endoscopes in the management of surgical disorders. Integumentary system: Surgical affections of udder, teat and canine mammary neoplasms. Surgical affections of tail and tail docking Wildorzoo animal surgery(only awareness)

UNIT-6 (ORTHOPEDICS AND LAMENESS)

Body conformation of the horse in relation to lameness (trunk, fore limb and hind limb).

Lameness: Its definition classification and diagnosis. General methods of therapy for lameness. Body and limb conformation in relation to lameness in equine.

Equine lameness: Shoulder slip (sweeny), bicipital bursitis, omarthritis, capped elbow, radial paralysis, carpitis. bent knee, and knock- knee. Hygroma of knee, open knee, blemished knee. Fracture of carpal bone, fracture of accessory carpal, contraction of digital flexors. Splints, sore shin, wind puffs, sesamoid iris Osstots, ringbone, quittor, side bone, Navicular disease, pyramidal disease. Laminitis, sand crack, seedy toe, fractures of third phalanx, pedal osteitis, and sole penetration. Canker, thrush and corn, Monday morning disease, cording up, myositis of psoas, Mac thrombosis, Crural paralysis, subluxation of sacroiliac joint rupture of round ligament trochantric bursitis. Upward fixation of patella, stringhalt, gonitis, chondromalacia of patella, rupture of tendoachilles, rupture of peroneus tertius, fibrotic myopathy and ossifying myopathy. Thoroughpin, bog spavin, spavin, curb, capped hock.

Canine lameness: Intervertebral disc diseases, elbow and hip dysplasia, rupture of cruciate ligament, elbow hygroma etc.; their management, Onychectomy.

Bovine lameness: Contusion of sole, ulceration of sole, septic laminitis, avulsion of hoof and subluxation of patella, interdigital fibroma, cyst, sand crack, and hoof deformities.

Fracture: Definitions, classification, fracture healing and complications.

Fracture: The preliminary assessment and management of fractures. Techniques of external immobilization of fractures.

Techniques of internal immobilization of fractures. Management of fracture complications

Luxations: Definition, signs, diagnosis. Management of common joint luxations in animals.

Spinal trauma, diagnosis and its management

Rehabilitation and physiotherapy of orthopaedic patients

PRACTICAL

UNIT-1(VETERINARY GENERAL SURGERY)

Introduction to layout of operation theatre and surgical unit. Introduction of common surgical equipment and instruments. Suture materials, surgical knots and suture patterns. General examination of surgical patients. Preparation of surgical patients. Other operation theatre routines like sterilization, preparation of theatre, Surgeon and surgical pack. Bandaging and basic wound management Demonstration (or Audio visual aids) of surgery, control of haemorrhage and suturing

UNIT-2 (VETERINARY ANAESTHESIOLOGY)

Familiarization with anaesthetic apparatus, monitoring equipment and accessories. Methods of local infiltration analgesia (Linear ring block, inverted L block etc.) Regional nerve block demonstration and practice (Auriculopalpebral block, Peterson block or 4 point retrobulbar nerve block, Paravertebral, epidural etc.) Intravenous regional anaesthesia in cattle. Administration of general anaesthesia in small and large animals. (Demonstration and practice). Administration of inhalant anaesthesia (Demonstration). Monitoring of general anaesthesia. Management of anaesthetic emergencies, use of artificial respirator and analeptics. Visit to a wild animal facility or audio-visual aids or both.

UNIT-3 (VETERINARY DIAGNOSTIC IMAGING TECHNIQUES)

Familiarization with the operation of the x-ray unit. Formulation of X-ray exposure technique charts, Adoption of safety measures and film processing. Positioning and radiography of different parts of the body in small and large animals Handling, viewing and interpretation of radiograph. Familiarization with the film contrast, density and details, common radiographic artifacts. Radiographic pathology of the head, neck and thorax of large and small animals. Radiographic pathology of abdomen of large and small animals. Radiographic pathology of the bones and joints of large and small animals. Demonstration of contrast radiographic techniques in animals. Demonstration of ultrasonography in animals. Fluoroscopy or Image intensifier (familiarization).

UNIT-4: (REGIONAL SURGERY-I)

Demonstration or Audio visual aids: Amputation of horn and disbudding. Tooth rasping, dental scaling. Examination of ear (otoscopy). Examination of eye (General examination, Ophthalmoscopy, tonometry, fluorescein dye test, Scherimer tear test, test for blindness). Operation for aural haematoma. Protection and bandage of eyes, tarsorhhaphy, third eyelid flap, flushing of nasolacrimal duct

UNIT-5: (REGIONAL SURGERY-II)

Demonstration or Audio visual aids-Castration in different species in clinical cases and under animal birth control programme in canine. Ovariohysterectomy in dogs and cats. Rumenotomy, Gastrotomy in dogs, Urethrotomy and urethrostomy. Cystotomy and cystorrhaphy. Enterotomy or Enterectomy. Management of teat and udder affections. Amputation of tail in different animals in clinical cases. Circumcision operation for prepucial and rectalprolapse. Thoracocentesis and abdominocentesis.

UNIT-6 (ORTHOPEDICS AND LAMENESS)

Demonstration or Audio visual aids-Familiarization with various orthopaedic instruments and implants. Basic orthopaedic and neurological examination in small and large animals. Nerve blocks in equine. Application of basic physiotherapy techniques in animals. Basic limb stabilization techniques and splinting techniques. Application of cast in small and large animals. Internal fixation techniques in animals. Medial patellar desmotomy in bovines. Examination of animals for soundness and preparation of soundness certificate.

ANNUAL EXAMINATION

PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
THEORY			
Paper-I	1, 2, 3 and 4	100	20
Paper-II	5 and 6	100	20
PRACTICAL			
Paper-I	1, 2, 3 and 4	60	20
Paper - II	5 and 6	60	20

(xvi) **DEPARTMENT OF VETERINARY MEDICINE**

VETERINARY MEDICINE **Credit Hours: 4+1**

THEORY

UNIT-1 (GENERAL)

History and scope of Veterinary Medicine, concept of animal diseases. Concepts of diagnosis, differential diagnosis, treatment and prognosis. General systemic states, hyperthermia, hypothermia, fever, septicemia, toxemia, shock, allergy, anaphylaxis, oedema, coma, anaemia, common clinical poisonings and dehydration.

Estimates of diseases, patterns of disease, disease monitoring and surveillance, herd health and quarantine.

UNIT-2 (SYSTEMIC DISEASES)

Etiology, clinical manifestations, diagnosis, differential diagnosis, treatment, prevention and control of the following diseases of cattle, buffalo, sheep, goat, horse, pig, dog, cat and poultry: Diseases of digestive, respiratory, cardiovascular, urinary, nervous, musculoskeletal, haemopoietic, and lymphatic systems, skin, sense organs

including affections of peritoneum, liver and pancreas. Emergency medicine and critical care.

UNIT-3 (METABOLIC AND DEFICIENCY DISORDERS)

Diagnosis and management of diseases caused by deficiency of iron, copper, cobalt, zinc, manganese, selenium, calcium, phosphorus, magnesium, iodine, vitamin A, D, E, B complex, K and C. Diseases of neonates, Alternative or integrated or ethno veterinary medicine in animal disease management. Aetiology, clinical manifestations, diagnosis, differential diagnosis, treatment prevention and control of metabolic or production and endocrine diseases of cattle, buffalo, sheep, goat, horse, pig, dog, cat and poultry i.e. Milk fever, eclampsia, osteodystrophy fibrosa, lactation tetany, downer cow syndrome, ketosis, fat cow syndrome, hypomagnesaemia, Nutritional haemoglobinuria, azoturia, diabetes, hypothyroidism, Cushing syndrome, Addison's disease and Gout.

UNIT-4 (ZOO AND WILD ANIMAL MEDICINE)

Principles of zoo hygiene, public health problems arising from zoos. Prevention, control and treatment of infectious, parasitic, nutritional and metabolic diseases in zoo and wild animals including exotic birds. Acts and Rules related to Zoo and wild animals. National and international organizations and institutions interlinked to wild and zoo animals – role and functioning.

UNIT-5 (BACTERIAL, FUNGAL AND RICKETTSIAL DISEASES)

Aetiology, epidemiology, clinical manifestations, diagnosis, treatment, prevention and control of bacterial, fungal and rickettsial diseases of livestock: mastitis, hemorrhagic septicaemia, brucellosis, tuberculosis, Johne's disease, listeriosis, leptospirosis, campylobacteriosis, actinomycosis, actinobacillosis, bordetellosis, glanders, strangles, ulcerative lymphangitis, colibacillosis, fowl typhoid, pullorum disease, fowl cholera, avian mycoplasmosis, spirochaetosis, salmonellosis, swine erysipelas, contagious caprine pleuropneumonia, contagious bovine pleuropneumonia, anthrax, clostridial infections, ehrlichiosis, chlamydosis, Q fever, anaplasmosis, dermatophilosis, aspergillosis, candidiasis, histoplasmosis, sporotrichosis, coccidiodomycosis, mycotoxicosis and rhinosporidiosis.

UNIT-6 (VIRAL AND PARASITIC DISEASES)

Aetiology, epidemiology, clinical manifestations, diagnosis, treatment, prevention and control of viral and parasitic diseases of diseases of cattle, buffalo, sheep, goat, horse, pig, dog, cat and poultry: Foot and mouth disease, rinderpest, bovine viral diarrhoea, malignant catarrhal fever, infectious bovine rhinotracheitis, ephemeral fever, blue tongue, sheep pox, goat pox, PPR, classical swine fever, rabies, equine influenza, equine infectious anemia, equine rhinopneumonitis, canine distemper, infectious canine hepatitis, canine parvoviral disease, corona viral infection, adeno virus infection, feline rhinotracheitis, feline pan leucopenia, feline infectious peritonitis, avian influenza, New Castle disease, Marek's disease, avian leucosis, infectious bronchitis, infectious laryngotracheitis, avian encaphalomyelitis, chicken reo virus, fowl pox, infectious bursal disease, chicken infectious anemia, inclusion body hepatitis-hydropericardium syndrome, emerging and exotic viral diseases of global importance.

Parasitic diseases: Trematodes, cestodes, nematodes, protozoan infections and external parasites of clinical importance.

UNIT-7 (JURISPRUDENCE, ETHICS, AND ANIMAL WELFARE)

Legal duties of veterinarians, laws related to medicine, evidence, common offences against animals and laws related to these offences. Examination of living and dead animals in criminal cases. Cruelty to animals and bestiality. Legal aspects of: Examination of animals for soundness, examination of injuries and post-mortem examination. Causes of sudden death in animals. Collection and despatch of materials for chemical examination, detection of frauds-doping, alternation of description, bishoping etc. Cattle slaughter and evidence procedure in courts. Provincial and Central Acts relating to

animals. Glanders and Farcy Act 1899 (13 of 1899). Dourine Act 1910 (5 of 1910), Laws relating to offences affecting Public Health. Laws relating to poisons and adulteration of drugs. Livestock importation act, liability and insurance. Code of conduct and ethics for veterinarians - the regulations made under the Act.

Animal welfare organizations and its role in animal welfare, welfare assessment, behaviour and animal welfare, principles and philosophy of animal welfare, animal welfare ethics, improving animal welfare through legislation and incentives, assessment of physiological, behavioural, disease and production measures of animal welfare, assessing welfare in practice, environment enrichment, euthanasia, welfare of animals used in education and research and transportation, religion and animal welfare, human and animal welfare conflict, veterinary disaster management, human–animal interactions, economics and animal welfare and veterinarians as animal welfare educators

PRACTICAL

UNIT-1 (GENERAL)

Collection of history and general clinical examination. Collection, preservation, packing and dispatch of samples from clinical cases. Nasogastric and orogastric intubation in animals. Oxygen therapy in veterinary practice. Gastric and peritoneal lavage. Collection and examination of cerebrospinal fluid. Blood transfusion .

UNIT-2 (SYSTEMIC DISEASES)

Special examination of cardiovascular system. Examination of urinary system. Special examination of respiratory system. Special examination of gastrointestinal system. ECG, Echocardiography, Ultrasonography, Endoscopy. Special examination of sense organs. . Examination of eye and ear. Collection and examination of peritoneal fluid. Peritoneal dialysis. Neurological examination in animals. Lymph node biopsy and bone marrow aspirate. Methods of medication. Disease Estimation

UNIT-3 (ZOO AND WILD ANIMAL MEDICINE)

Management and restraint of zoo and exotic animals. Drug delivery in zoo and wild animals. Visit to Zooor Sanctuary. Examination of veterolegal cases.

UNIT-4 (BACTERIAL, FUNGAL AND RICKETTSIAL DISEASES)

PRACTICALS

TB, JD and Mallein testing in animal. Brucellosis testing in animals. Physical and chemical tests for detection of mastitis. Application of molecular and serology techniques on clinical samples for disease diagnosis. Pen-side diagnostic tests for infectious diseases. Practical approaches to disease outbreak investigation and its control.

UNIT-5 (VIRAL AND PARASITIC DISEASES)

Collection and examination of skin scrapings- Parasitic, fungal, bacterial. Examination of blood for parasites. Dark field microscopy. Application of Molecular and serological techniques or clinical samples for diagnosis of viral and parasitic diseases.

ANNUAL EXAMINATION

PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
THEORY			
Paper-I	1, 2, 3 and 4	100	20
Paper-II	5, 6 and 7	100	20
PRACTICAL			
Paper-I	1, 2 and 3	60	20
Paper - II	4 and 5	60	20

(xvii) **DEPARTMENT OF VETERINARY GYNAECOLOGY AND OBSTETRICS**

VETERINARY GYNAECOLOGY AND OBSTETRICS **Credit Hours 2+1**

THEORY

UNIT- 1 (VETERINARY GYNAECOLOGY)

Bovine : Applied clinical anatomy and embryology of female reproductive tract - Hereditary and congenital anomalies of female reproductive tract –Puberty and sexual maturity and their endocrine control- Delayed puberty- Its causes, clinical

approach, treatment and prevention of delayed puberty- Applied reproductive physiology and endocrinology of oestrous cycle- Oestrous cycle and factors affecting the length of the oestrous cycle-Aberrations of oestrus and their clinical management and problems in oestrus detection and oestrus detection aids –Transportation and survivability of gametes in female reproductive tract-Follicular Dynamics and its clinical impact on fertility improvement- ovulation and aberrations of ovulation-Incidence causes, diagnosis treatment and prevention of ovulatory failures- Fertilization and aberrations of fertilization- Fertilization failures - embryonic mortality-incidence, causes, diagnosis, treatment and prevention – Pathological affections of ovary, uterine tubes, uterus, cervix , vagina and external genitalia – Clinical management of specific and non-specific forms of infectious infertility- Role of nutrition, climate and stress on reproductive efficiency - Managemental causes of infertility- Anoestrus and repeat breeding syndrome - Diagnostic procedures in infertility investigation – Clinical uses of hormones and drugs in the management of infertility- Surgical procedures for correction of abnormalities of the female reproductive tract. Herd reproductive health management and fertility parameters in individual animals and in herds.

Assisted reproductive techniques: Synchronization of estrus and ovulation and its principle. methodology and implications- Multiple ovulation and Embryo transfer technology-In vitro fertilization.

Equines: oestrous cycle- Seasonality- breeding management- Aberrations of oestrous cycle and ovulations- Techniques of Pregnancy diagnosis- Clinical management of specific and non-specific forms of infectious infertility- Diagnostic procedures in infertility investigation

Ovines and caprines: oestrous cycle- Seasonality- Control of oestrous cycle and infertility

Swines : oestrous cycle- breeding management- Techniques of Pregnancy diagnosis and infertility

Canines and Felines : oestrous cycle- breeding management- Phantom pregnancy- Medical termination of pregnancy – Aberrations of oestrous cycle- Medical and surgical management of affections of ovary, uterine tubes, uterus, cervix, vagina and external genitalia – Methods of Population control by medical and surgical techniques. Comparative reproductive events in camel

Principle, procedure and application of ultrasonography in farm and pet animal reproduction

UNIT-2 (VETERINARY OBSTETRICS)

Farm and pet animals - Maternal recognition of pregnancy – Applied Endocrinology of pregnancy – Pregnancy diagnosis- Duration of pregnancy -Factors affecting gestation length- Care and management of pregnant animals- Implantation, Placentation- Classification, functions –Wandering of ovum- Telegony- Superfetation and Superfecundation – Clinical management of specific and non specific causes of abortion, extra uterine pregnancy, dropsy of fetal membranes and fetus, mummification, maceration, cervicovaginal prolapse, uterine torsion and hysterocele. Parturition- Signs of approaching parturition - Stages of parturition - Initiation and induction of parturition - lactational disorders - Puerparium and factors affecting puerparium - Postpartum care of the dam and neonate in different species of farm and pet animals - Dystocia – Classification - Clinical signs and diagnosis - Handling of Fetal and maternal dystocia – Obstetrical interventions - Mutation – Forced extraction – Fetotomy – Cesarean section in small and large animals – Maternal obstetrical paralysis - Retention of fetal membranes, Total uterine prolapse and common metabolic diseases of puerperal period – Post partum hemorrhage – Sub involution of placental sites - Injuries incidental to parturition - Post partum uterine infections – Post partum resumption of ovarian activity .

UNIT–3(VETERINARY ANDROLOGY AND A.I.)

Farm and pet animals - Comparative clinical reproductive anatomy and endocrinology of the male reproduction - Common congenital and genetic defects of the male reproductive tract – Puberty and sexual maturity and factors affecting them - Sexual behaviour and libido - Sperm transport, erection and ejaculation - Coital injuries and vices in male animals - Semen and ejaculate – Semen collection techniques- Structure of Spermatozoa - Semen evaluation - Semen extenders, dilution, preservation and post thaw evaluation - Artificial insemination techniques in farm and pet animals - Forms of male infertility - Impotentia coeundi and impotentia generandi – Affections of the scrotum, testis, accessory sex glands, penis and prepuce - Breeding soundness evaluation of bull – *In vitro* tests for evaluation of male fertility - Medical and surgical techniques for population control of the male reproduction – Surgical procedure on the male reproductive tract in farm and pet animals.

PRACTICAL

UNIT- 1 (VETERINARY GYNAECOLOGY)

Study of female genital organs using slaughter house specimens- Oestrus detection aids - Techniques of rectal palpation of female reproductive tract - Gynaecological equipment and instruments -Vaginal exfoliative cytology and vaginoscopy- Ultrasonography of female reproductive tract - Surgical procedures on the vulva, vagina and uterus-Study of pathological specimens of female genital tract- Demonstration and practice of ovario-hysterectomy and panhysterectomy- Diagnostic procedures in investigation of infertility in female animals

UNIT-2 (VETERINARY OBSTETRICS)

Study of pelvis and pelvimetry- Pregnancy diagnosis-Study of foetal membranes of domestic and pet animals -and identification of normal and abnormal foetal membranes-Approaching signs of parturition- Stages of parturition-Approach to an obstetrical case- Obstetrical anaesthesia - obstetrical instrument and equipment - Manipulation of foetal malpresentation in phantom boxes - Maternal causes of dystocia and its management-Fetotomy in cadavers, Demonstration of forceps delivery and Caesarean section in small and large animal clinical cases. Handling of prolapse of genitalia.

UNIT–3 (VETERINARY ANDROLOGY, AI AND ASSISTED REPRODUCTIVE TECHNIQUES)

Study of male genital organs using slaughter house specimens- Techniques of rectal palpation of the male reproductive tract- Andrological and AI equipment -Vasectomy and castration -Surgical procedures on penis, prepuce and scrotum-Planning and organization of AI centre-Preparation of teaser animals -Selection, care, training and maintenance of male animal used for breeding purpose-Techniques of semen collection-Semen evaluation techniques -Sterilization, storage of equipment used for semen collection and Artificial insemination-Preparation of extenders and extension of semen-Preservation of semen-Thawing of semen and technique of AI-Handling and maintenance of LN_2 containers. Diagnostic procedures in investigation of infertility in male animals-Breeding soundness evaluation of bulls- Oestrus synchronization procedures- Multiple Ovulation and Embryo Transfer- *In Vitro* Fertilization

ANNUAL EXAMINATION

PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
THEORY			
Paper-I	1	100	20
Paper-II	2 and 3	100	20
PRACTICAL			
Paper-I	1	60	20
Paper - II	2 and 3	60	20

PART VI

MINIMUM STANDARDS OF VETERINARY EDUCATION

22. (1) The following are the minimum standard requirements for a Veterinary College for 80 Admissions Annually, namely:-

Each Veterinary College shall have the following Seventeen Departments under the administrative control of the Dean or Principal or Associate Dean. Poultry Science or Wild animal or any other department if existing, as per their regional importance in that area, shall continue to exist with minimum of three teachers with atleast one professor, namely:-

(i) Veterinary Anatomy

(ii) Veterinary Physiology and Biochemistry

(iii) Livestock Production Management

(iv) Veterinary Microbiology

(v) Veterinary Pathology

(vi) Animal Genetics and Breeding

(vii) Animal Nutrition

(viii) Veterinary Pharmacology and Toxicology

(ix) Veterinary Public Health and Epidemiology

(x) Veterinary Parasitology

(xi) Livestock Product Technology

(xii) Veterinary and Animal Husbandry Extension Education

(xiii) Veterinary Clinical Practices

(xiv) Livestock Farm Practices

(xv) Veterinary Surgery and Radiology

(xvi) Veterinary Medicine

(xvii) Veterinary Gynaecology and Obstetrics

(2) Every Veterinary College shall have its own building and minimum 30 acres of land for running various departments and Farm and fodder production area, however, for hilly terrain a minimum of 25 acres of land is required.

(3) The Veterinary Clinical Complex shall also have well equipped outdoor and indoor patient sections (including canine) and client accommodation facilities. The complex shall have medical, surgical, gynecological, diagnostic and ambulatory clinical sections. The Livestock Farm Complex shall have Livestock Units and infrastructure for maintenance of livestock, animals of different species, unit of non producing animals for clinical or para clinical teaching, storage facilities for feed and fodder and fodder production area (optional).

(4) Five lecture halls fitted with audio-visual projection system

(5) Conference Hall with multimedia projection system

(6) Distillation or Deionizer plants

(7) Photography Unit with all facilities

(8) Central Instrumentation Facility (CIF)

(9) In addition to the accommodation mentioned above the College building complex shall provide the following, namely:

(i) Dean or Principal's or Associate Dean office room with attached toilet room and retiring room.

(ii) Visitor's room.

(iii) Committee room with projection facilities.

(iv) Office room accommodating office staff of Academic, Accounts and Establishment Sections.

(v) Central store room.

(vi) Personal Staff room with attached toilet facilities.

(vii) Toilet facilities for visitors and office staff.

(viii) Record room

(ix) Typing, Duplicating and Photocopying facilities

(x) Canteen

(xi) Library with reading room and arrangement for staff and students with adequate seating accommodation

(xii) A Conference hall with facility for visual demonstrations and projections

(xiii) Four lecture halls each with a seating capacity for minimum of 100 students with the facilities of audio-visual aids

(xiv) Examination Hall(s)

(xv) Toilets (Gents and Ladies)

(xvi) Drinking water facility

(xvii) College auditorium

(xviii) Play grounds with games and sports facilities including indoor games facilities

(xix) Hostels for boys and girls (including Interns) with common room, mess etc.

(xx) Central Computer Lab.

(xxi) Central College Diagnostic Lab (Optional)

(xxii) Transport facilities including bus, minibus, staff car, ambulatory van and mobile diagnostic unit

(xxiii) Artificial Insemination Centre (optional)

(xxiv) Round the clock health facility for treatment of staff and students

(xxv) Simulation laborator

(xxvi) Skill development laboratory

(10) These are minimum requirements for Veterinary Institution imparting education leading to B.V.Sc. and A,H. degree. However institution or colleges having additional departments; special infrastructural and academic facilities would be encouraged to enlist them as desirable facilities keeping in view the demands and advances in the discipline or sub-discipline concerned.

(11) General accommodation facilities to be provided in each department:

(i)	Chamber of HOD	200sq.ft
(ii)	Office for the each teaching staff	100 sq. ft.
(iii)	Office of the department	200 sq. ft.
(iv)	Store	150 sq. ft.

(12) The required infrastructures shown below are the minimum or critical in each department for imparting undergraduate teaching leading to Bachelor of Veterinary Science and Animal Husbandry degree. The departments having other activities like post-graduate teaching, research, extension and other services attached, shall have the additional infrastructure on need basis.

(13) **The following shall be the Department-wise space requirement, namely:-**

(i) VETERINARY ANATOMY

(a) Osteology and Arthrology Lab.	600 sq. ft.
(b) Dissection hall with attached embalming room	1200 sq. ft.
(c) Histology and Embryology Lab	600 sq. ft.
(d) Museum	600 sq. ft.

(ii) VETERINARY PHYSIOLOGY AND BIOCHEMISTRY

(a) Physiology Lab	600 sq. ft.
(b) Biochemistry Lab	600 sq. ft.
(c) Analytical equipment and maintenance Laboratory	600 sq. ft.

(iii) LIVESTOCK PRODUCTION MANAGEMENT

(a) Judging Pavilion-cum Handling Room in LFC	1200 sq. ft.
(b) U. G. Lab-cum-Museum for breed charts and animal house Models	600 sq. ft.

(iv) VETERINARY MICROBIOLOGY

(a) Bacteriology and Mycology Lab	600 sq. ft.
(b) Virology Lab (with air conditioned tissue culture Lab and	200 sq. ft.

	(c) egg inoculation booth,)	
	(d) Immunology Lab.	600 sq. ft.
	(e) Glassware washing and sterilization room	150 sq. ft.
(v)	**VETERINARY PATHOLOGY**	
	(a) Histopathology Lab	600 sq. ft.
	(b) Clinical Pathology Lab	600 sq. ft.
	(c) Museum	600 sq. ft.
	(d) Post –mortem room for large animals and poultry	600 sq. ft.
	(e) Museum	300 sq. ft.
(vi)	**ANIMAL GENETICS AND BREEDING**	
	(a) Computer Lab (Central Facility)	1200 sq. ft.
	(b) U.G. Laboratory	600 sq. ft.
(vii)	**ANIMAL NUTRITION**	
	(a) Feed and fodder analysis Lab	600 sq. ft.
	(b) Energy Metabolism Lab	600 sq. ft.
	(c) Metabolic stall or Boxes (desirable)	
	(d) Feed processing and mixing plant (desirable)	900 sq. ft.
(viii)	**VETERINARY PHARMACOLOGY AND TOXICOLOGY**	
	(a) Experimental Pharmacology Lab	600 sq. ft.
	(b) Pharmacy Lab	600 sq. ft.
	(c) Toxicology or Chemotherapy Lab	600 sq. ft.
(ix)	**VETERINARY PUBLIC HEALTH AND EPIDEMIOLOGY**	
	(a) Zoonosis-cum-Epidemiology Lab	
	(b) Milk Hygiene Lab	600 sq. ft.
	(c) Meat Hygiene Lab	600 sq. ft.
(x)	**VETERINARY PARASITOLOGY**	
	(a) Helminthology Lab cum Museum	600 sq. ft.
	(b) Entomology and Protozoology Lab	600 sq. ft.
(xi)	**LIVESTOCK PRODUCT TECHNOLOGY**	
	Hygienically maintained mini slaughter house for 5 to 10 animals (sheep and goat) and 50 poultry	
	(a) Meat technology Lab	600 sq. ft.
	(b) Dairy technology Lab	600 sq. ft.
(xii)	**VETERINARY AND ANIMAL HUSBANDRY EXTENSION EDUCATION**	
	(a) Audio-visual technology Laboratory	600 sq. ft.
	(b) Photography-cum-graphic unit, projection unit etc	600 sq. ft.
	(c) Group discussion chambers or mini seminar room	600 sq. ft.
	(d) Museum-cum-live-stock advisory unit	600 sq. ft.

(xiii) VETERINARY SURGERY AND RADIOLOGY

(a) X Ray and Imaging Facilities	900 sq. ft.
(b) Small animal operation theatre	600 sq. ft
(c) Large animal operation theatre	600 sq. ft

(xiv) VETERINARY MEDICINE

(a) Clinical Medicine Lab	600 sq. ft.
(b) Preventive Medicine Lab	600 sq. ft.

(xv) VETERINARY GYNAECOLOGY AND OBSTETRICS

(a) U. G. Laboratory	600 sq. ft.
(b) Phantom hall and palpation room	600 sq. ft.
(c) Artificial Insemination Centre with a semen storage and Trevis facility	
(d) Museum	600 sq.ft

(xvi) VETERINARY CLINICAL COMPLEX

NOTE: This is the department where the following departments will be operating their training and services. The faculty from departments of Veterinary Medicine, Veterinary Surgery and Radiology, Veterinary Gynaecology and Obstetrics shall be on rotational duty during normal or off hours and holidays. Veterinary Microbiology, Veterinary Parasitology and Veterinary Pharmacology shall assist in the VCP. Animal Birth Control programme and anti Rabies vaccination activities shall be taken up by VCC.

(a) Reception

(i) Waiting hall for large animals.

(ii) Waiting hall for small animals.

(iii) Registration counter or record room

(iv) Dispensary, drug store etc.

(b) Animal examination section – fitted with chutes

(1) Large animals

(i) Medical unit

(ii) Surgical unit

(iii) Gynaecology unit

(2) Small animals

(i) Same as above with animal examination table

(c) Operation theatre complex:

(i) Equine surgery

(ii) Bovine surgery (standard surgery) with surgical chute (Uthrecht pattern preferable)

(iii) Canine surgery

(d) Infectious and contagious disease wards.

(i) Rabies ward

(ii) Equine isolation ward

(iii) Bovine isolation ward

(iv) Skin ward

(e) Recovery room for large animals, slings, hoist, head protectors, hobbles, twitch, linkers etc.

(f) Intensive– care unit for small animal

(g) Veterinary Diagnostic Laboratory with the facilities for Pathological, Microbiological, Parasitological and Biochemical investigation of clinical cases

(h) Indoor ward along with client or farmers rooms.

(i) Ambulatory unit (complete with diagnostic and therapeutic equipments).

(j) Animal transport facility or forklift (desirable.)

(k) Night duty section with facilities for, technicians, residents and students rooms and vehicle to transport doctors during emergencies

(l) Accommodation for staff of clinical departments and specialized services

(m) Dark room, film room, interpretation room. Computerized radiography system with accessories (optional)

(n) Physiotherapy room

(o) Loading and unloading platform

(xvii) LIVESTOCK FARM COMPLEX

(a) This Department of Veterinary College shall provide the services of teaching in rearing of livestock species including poultry with the facilities of housing, feeding, breeding and management of large and small ruminant units, piggery, poultry and animals of regional interest; record keeping; prepration of mineral mixture and storage facilities for feed and fodder; production facilities for fodder crops; suitable accommodation for staff or students on duty.

(b) All the concerned staff on duty in this Unit shall be responsible for management including emergencies of the animals in the Livestock Farm. They shall arrange and supervise the routine managemental practices from time to time and shall maintain records for the same. They shall also be responsible for production activity in each of the units and these animals shall be utilized as instructional farms for student teaching. Since poultry is an important component, person with Poultry Science degree or person with specialization in poultry should be appointed in LFC.

(c) LFC shall have the following farm units or land for fodder production:

A. Animal Production Management

(i) Judging Pavilion-cum- Handling Room 1200 sq. ft.

(ii) Cattle or buffalo (100)

(iii) Sheep and Goat- 50 animals each.

(iv) Piggery- 10 with one male

(v) Horse- Two (Male-one and Female-one)

(vi) Camel or regional animal (optional)

(vii) Fodder production and grassland management facility

(viii) LFC will have a group of 10 to 20 non productive animals for clinical or para clinical teaching, however, these animals shall not be used for invasive procedures.

B. **Avian Production Management**

(i) Poultry 1000 Layers and 1000 Broilers

(ii) Models of various systems, Pens, Cages, Runs, and Equipment.

a. Sample stock of various breeds of poultry and other avian.

b. Hatchery and chick pens.

c. Brooders.

C. **Fodder Production Management**

(i) Minimum 15 acres of land to meet the requirement for fodder for the LFC.

(ii) The housing should be as per Animal welfare requirements as per the Principles of 'Five Freedoms' for animal welfare.

(iii) Farm data room taking care of pedigree charts, stock books and other farm bio-data, farm account on income and other farm expenditure, balance sheets etc. shall be available as teaching material, preferably in computer terminals.

(14) Emphasis of veterinary education being on practical, instruction and demonstration must be carried out in small groups of 5-10 students; the number of teachers must be adequate for such instructions to be carried out effectively. Preferably two teachers should be involved in practical classes for better understanding.

(15) The teaching staff of the departments in a veterinary college shall be whole-time teachers.

(16) The number of staff requirement shown below is the minimum or critical in each department for imparting undergraduate teaching leading to Bachelor of Veterinary Science and Animal Husbandry degree. The departments having other activities like post-graduate teaching and other services attached, shall have at least two more faculty members of the rank of Associate Professor in each department as additional faculty members.

(17) To ensure exposure of under-graduate students to experienced teachers, it is essential to provide adequate number of senior posts (Professor or Associate Professor) in every department. No department shall function without at least one Professor or Associate Professor.

(18) The following shall be the administration and establishment positions, namely:-

(a) Dean's Office

(b) The Dean

(c) A and AO

(d) P.A or P.S

(e) Academic Assistant

(f) Account Assistant

(g) Establishment Assistant

(h) Drivers, Messengers, Attendants, Gardeners, Sweepers, Electricians. Plumbers etc

(i) Store Purchase Unit

(19) Minimum secretarial or supporting or accounts staff should be made available to each Department or Unit in a Veterinary College as per workload and for smooth independent functioning.

(20) Radiographer for department of Surgery, Lab Technician or Audio visual technician or Artist-cum photographer or Driver or Animal Attendant-cum-Macerator or Embalmer or Lab Assistant or Lab Attendant or Animal Attendant or Attendant or Post mortem Attendant or Sweeper or Casual labour for farm practices or operations shall be as per the need and requirement of individual department.

(21) The following shall be Department-wise minimum manpower requirement, namely:-

(i) VETERINARY ANATOMY

(a) Professor 1

	(b) Associate Professor	1
	(c) Assistant Professor	2
(ii)	**VETERINARY PHYSIOLOGY AND BIOCHEMISTRY**	
	(a) Professor	1
	(b) Associate	1
	(c) Assistant Professor	3
(iii)	**LIVESTOCK PRODUCTION MANAGEMENT**	
	(a) Professor	1
	(b) Associate Professor	1
	(c) Assistant Professor	2
(iv)	**VETERINARY MICROBIOLOGY**	
	(a) Professor	1
	(b) Associate Professor	1
	(c) Assistant Professor	2
	(d) One faculty member to be deputed semester wise on rotational basis for 3 hrs. during clinics	
(v)	**VETERINARY PATHOLOGY**	
	(a) Professor	1
	(b) Associate Professor	1
	(c) Assistant Professor	2
	(d) One faculty member for post mortem on rotational basis	
(vi)	**ANIMAL GENETICS AND BREEDING**	
	(a) Professor	1
	(b) Associate Professor	1
	(c) Assistant Professor	1
(vii)	**ANIMAL NUTRITION**	
	(a) Professor	1
	(b) Associate Professor	1
	(c) Assistant Professor	1
(viii)	**VETERINARY PHARMACOLOGY AND TOXICOLOGGY**	
	(a) Professor	1
	(b) Associate Professor	1
	(c) Assistant Professor	1
	(d) One faculty member to be deputed semester wise on rotational basis for 3 hrs. during clinics	
(ix)	**VETERINARY PUBLIC HEALTH AND EPIDEMIOLOGY**	
	(a) Professor	1
	(b) Associate Professor	1

	(c) Assistant Professor	1
	(d) The college having separate disease diagnostic centres will have additional faculty in this department as per requirement	
(x)	**VETERINARY PARASITOLOGY**	
	(a) Professor	1
	(b) Associate Professor	1
	(c) Assistant Professor	2
	(d) One faculty member to be deputed semester wise on rotational basis for 3 hrs. during clinics	
(xi)	**LIVESTOCK PRODUCT TECHNOLOGY**	
	(a) Professor	1
	(b) Associate Professor	1
	(c) Assistant Professor	2
	(d) One faculty member will be involved in Entrepreneurial training, milk processing etc.	
(xii)	**VETERINARY AND ANIMAL HUSBANDRY EXTENSION EDUCATION**	
	(a) Professor	1
	(b) Associate Professor	1
	(c) Assistant Professor	1
	(d) Extension activities and village tours	
(xiii)	**VETERINARY SURGERY AND RADIOLOGY**	
	(a) Professor	1
	(b) Associate Professor	1
	(c) Assistant Professor	3
	(d) At least two faculty members shall be involved for VCP on rotational basis and one faculty member for off hours or holidays on rotational basis	
(xiv)	**VETERINARY MEDICINE**	
	(a) Professor	1
	(b) Associate Professor	1
	(c) Assistant Professor	3
	(d) At least two faculty members shall be involved for VCP on rotational basis and one faculty member for off hours or holidays on rotational basis	
(xv)	**VETERINARY GYNAECOLOGY AND OBSTETRICS**	
	(a) Professor	1
	(b) Associate Professor	1
	(c) Assistant Professor	3
	(d) At least two faculty members shall be involved for VCP on rotational basis and one faculty member for off hours or holidays on rotational basis	

(xvi)	**VETERINARY CLINICAL COMPLEX**	
	(a) Professor with specialization in any of the clinical subjects	1
	(b) Associate Professor (Internship)*	1
	(c) Assistant Professor Clinical Pathology for Diagnostic Laboratory	1
	(d) Assistant Professor (Veterinary Biochemistry)	1
	(e) Assistant Professor (Medicine-2, Surgery-1, Gynaecology-1)	4
	These teachers of Pathology, Biochemistry, Medicine, Surgery and Gynaecology should be rotated in their respective departments so that they are involved in teaching but not before two years.	
	(f) Record Keeper cum Data Operator	1
	(g) Registration Assistant	1
	(h) In-charge medical store	1
	(i) Compounder or Pharmacistor VLDA	4
	(j) Laboratory Technician	1
	(k) Radiographer	1
	*Internship will be the additional duty of Assoc. Prof. Internship alongwith routine clinical duty	
	(l) The staff posted in VCC shall be responsible for maintaining its functionality. However, the Teaching Faculty from Surgery, Medicine and Gynaecology Departments shall also be responsible for providing all kind of services in their respective unit located in VCC on rotation. They shall also be involved during off hours and holidays as per their local needs.	
(xvii)	**LIVESTOCK FARM COMPLEX (LFC)**	
	(a) Professor with specialization preferably in Livestock Production and Management	1
	(b) Assistant Professors (One each from Poultry production, Animal genetics and Breeding, Animal Nutrition, Livestock production and management, Veterinary medicine and Veterinary Obstetrics and Gynaecology). These teachers should be rotated in their respective departments so that they are involved in teaching but not before two years. If the herd population exceeds the prescribed minimum required additional faculty from production subjects can be recruited.	6
	(c) Assistant Farm Managers (One BVSc&AH and one Agriculture graduate for fodder production unit preferably MSc Agronomy)	2
	(d) Casual labourers	As per need
	(e) Machine Operator or Tractor Driver	As per need
	(f) VLDA	2
	(g) Assistant Farm Manager (Veterinary) will ensure the proper upkeep and maintenance of the farm and shall provide first aid and preliminary line of treatment for the cases at farm during off hours and holidays.	

(22) The required equipments shown below are the minimum or critical in each department for imparting undergraduate teaching leading to Bachelor of Veterinary Science and Animal Husbandry degree. The sophisticated equipment be placed in cubicles for better maintenance. The departments having other activities like post-graduate teaching, research, extension and other services attached, shall have the additional equipments on need basis.

(23) The department of Veterinary Anatomy shall have the following facilities, namely:-

1.	Almirah for bones, microscope etc.	As per need
2.	Steel or Iron racks for bones 15	15
3.	Show-cases (glass panelled) for museum	15
4.	Marble-topor S.S Top tables (with drainage)- for dissection	10
5.	Compound microscopes	30
6.	Binocular microscopes	10
7.	Autoclave	1
8	P^H meter	1
9.	Hot air oven	2
10.	CCTV attachment for Microscope	1
11.	Cadaver injector	1
12.	Deep freezer - -20^0 c - Horizontal	1
13.	Digital Analytical balance	1
14.	X- ray viewer	2
15.	Slide warmer	2
16.	Semiautomatic or Automatic rotary microtome	2
17.	Tissue floatation bath	2
18.	Histoembedder	1
19.	Refrigerator (double door)	1
20.	Drilling machine for skeleton mounting	2 sets
21.	Electric bone saw	1
22.	Animal hoisting unit with hooks etc	1
23.	Post mortem sets	2
24.	Scissors Straight	As per need
25.	Scissors Curved	As per need
26.	Hand saw	As per need
27.	Rib cutter	As per need
28.	Forceps Large	As per need
29.	Forceps small	As per need
30.	Artery forceps	As per need
31.	B. P Handles	As per need
32.	Tennaculum	As per need
33.	Plastic drums with cover	As per need
34.	Plastic buckets with cover	As per need
35.	Enamelled iron or Tissue disposable buckets	As per need
36.	Steel racks for wet specimens	As per need
37.	Enamelled trays	As per need
38.	Enamelled basins	As per need
39.	Slide box (100 slides)	As per need

40.	Slide Cabinet 2000 slides	As per need
41.	Ice box	As per need
42.	Staining jars	As per need
43.	Coupling jars	As per need
44.	S.S. Staining trays	As per need
45.	Glass- wares including museum jars	As per need
46.	Basic equipments, instruments and fluid for embalming of ethically sourced cadevar	As per need

(24) The Department of Veterinary Physiology and Biochemistry shall have the following facilities, namely:-

VETERINARY PHYSIOLOGY

1.	Compound projection microscopes with LCD Screen 1	1
2.	Haemocytometer sets 20	20
3.	Haemoglobinometer sets	20
4.	Microhematocrit tubes	As per need
5.	Centrifuge 10000 RPM	2
6.	Wintrobes tubes	20
7.	Software for nerve-muscle experiments	1
8.	Sphigmomanometers (Digitalor dial typeor Mercury)	10
9.	Computerised Physiology Teaching software for various systems	1
10.	Spectro photometer	1
11.	Mono pan digital balance	5
12.	Physiograph	1
13.	Microkjeldahl set	4
14.	Digestion set	1
15.	Automatic Hematological analyser (Blood cell Counter)	1
16.	DLC Counter	5
17.	Hot air oven	1
18.	Micro Haematocrit centrifuge	1
19.	pH meter	1
20.	Viscometer	10
21.	Urinometer	10
22.	E.C.G. (Portable)	1
23.	Surface Integrator	1
24.	Stalagmometer	10
25.	Stethoscopes	10
26.	Clinical Thermometer (Digital)	10
27.	Student Microscope	10
28.	Conway diffusion disc	20
29.	Lux meter, Wind Vane, Anemometer, Rain Gauge, Maximum Minimum Thermometer, Sling psychrometer, Barometer, Cambell Stokes Sunshine recorder, Open pan Evaporimeter, Noise recorder, Dew point hygrometer	One each

VETERINARY BIOCHEMISTRY

1.	Laboratory Centrifuge 5000 rpm	2
2.	Colorimeter	1
3.	Spectrophotometer	1
4.	Flame photometer	1
5.	Electronic weighing balance	4
6.	Refrigerator	1
7.	Deep freezer (-20 C)	1
8.	Paper chromatography system	1
9.	Hot air oven	1
10.	Hot Water bath	2
11.	Hot plate to accommodate six conical flasks	1
12.	Incubator	1
13.	Micropipettes (capacity maximum 10 µl, 100 µl , 1000 µl)	1 each
14.	Fume hood	1
15.	pH meter	1
16.	Magnetic Stirrer	1
17.	Vortex Mixer	1
18.	Glassware	As per need
19.	Chemicals or Reagents	As per need
20.	Blood analyzer	1
21.	Refractometer	As per need
22.	Binocular microscope	2

(25) The Department of Livestock Production Management shall have the following facilities, namely:-

1.	Body brush	1
2.	Bull holder	1
3.	Bull leader	1
4.	Bull nose punch	1
5.	Bull nose ring	1
6.	Casting ropes (10-15 mt)	1
7.	Clinical thermometer	1
8.	Curry comb	1
9.	Dehorning saw	1
10.	Dipping fork	1
11.	Drenching equipment	1
12.	Drinking water gag	1
13.	Driving hammer	1
14.	Ear or neck chain	1
15.	Burdizzo castrator	1
16.	Enamel tray	1

17.	Hair clipping machine	1
18.	Halter	1
19.	Hoof rasp	1
20.	Hoof trimmer	1
21.	Measuring beakers	1
22.	Measuring tape	1
23.	Electric dehorner	1
24.	Milk measures	4
25.	Milk strainer	1
26.	Milking cans	1
27.	Milking machine	Optional
28.	Milking pails	2
29.	Muzzle prong	1
30.	Pig catcher	1
31.	Pincers	1
32.	Scissors	1
33.	Shearing machine	Optional
34.	Sprayer	1
35.	Strip cup	1
36.	Tattooing forceps	1
37.	Teat siphon	1
38.	Trocar and canula	1
39.	Drenching can or Bottle	1
40.	Probang gag	1
41.	Craddleor Leads	1
42.	Feed trolies	1
43.	Hair Clipper	1
44.	Tractor	1
45.	Feeder – chick	10
46.	Feeder – Grower	10
47.	Feeder – Layer	10
48.	Feeder – Breeder	5
49.	Drinker – Chick	10
50.	Drinker – Grower	10
51.	Drinker – Automatic	10
52.	Drinker – Nipple	10
53.	Drinker – Nipple with cup	10
54.	Automatic vaccinator	5
55.	Feeding scoop	2
56.	Individual nest box	2

57.	Community nest box	2
58.	Trap nest	1
59.	Egg filler flats – Plastic & carboard	50
60.	Egg tray	100
61.	Individual egg candler	2
62.	Brooder – Electric or Infrared or Gas or Bukhari	2
63.	Brooder guard	10
64.	Hover	5
65.	Feed grinder (Mini)	1
66.	Feed mixer (Mini)	1
67.	Incubator	1
68.	Leg bands	50
69.	Leg bands	50
70.	Models of different housing systems	1
71.	Model of environmentally controlled poultry house	1
72.	Charts of different poultry breeds	5
73.	Charts of different body parts of chicken	2
74.	Flame gun	1
75.	Vernier Calipers	10
76.	Screw gauges	10
77.	Spherometers	10
78.	Models of different types of cages	2
79.	Litter raker	5
80.	Wet and dry bulb thermometer	5
81.	Hygrometer	1
82.	Weighing balances – 100 g; 1 kg; 5 kg; 30 kg and 200 Kgs	1 each
83.	Poultry AI instruments (Semen collection cup; inseminating syringe etc.)	5

(26) The Department of Veterinary Microbiology shall have the following facilities, namely:-

1.	Autoclave	2
2.	Hot-air Oven	2
3.	Seitz filter assembly including Seitz, vacuum pressure pumps etc.	1
4.	Millipore filters	As per need
5.	Students Microscopes with light source	15
6.	Stage and ocular micrometer (for measurement of bacteria)	5
7.	Hanging drop preparation slides with cover-slips	30
8.	Petri-dishes 3" and 4"	As per need
9.	Platinum loops	As per need
10.	Bunsen burners	20
11.	Mc'intosh and fields's anaerobic jar	2
12.	Incubator	2

13.	Biological Oxygen Demand (B.O.D.) Incubator	1
14.	Water bath	2
15.	Deep-freeze 20 degree C	1
16.	Photo Colorimeter	2
17.	Ultra-violet Lamp	2
18.	Laminar flow cabinet	2
19.	Colony Counter	2
20.	ELISA test reader	1
21.	Microtips and boxes	As per need
22.	Syringes etc.	As per need
23.	Scalpel, forceps, scissors etc.	As per need
24.	Immuno electrophoresis apparatus	2
25.	Centrifuge ordinary	2
26.	Hight-speed centrifuge (16000 to 20000 rpm)	1
27.	Refrigerated centrifuge	1
28.	Dental drill (for egg inoculation)	4
29.	Automatic pipette washer	2
30.	Glass-ware, cotton wool, syringe, media, sugars, etc.	As per need
31.	Egg Candler	2
32.	Egg Incubator	1
33.	Inverted Microscope	1
34.	Refrigerator	1
35.	Haemocytometer chamber	4
36.	Micropipette (0.5-10 µl, 10-200 µl, 100-1000µl)	1 each
37.	Multichannel micropipette (10-300 µl)	1
38.	Vortex Mixer	1
39.	Weighing Balance	1
40.	Magnetic Stirrer	1
41.	Microcentrifuge	1
42.	Blotting Apparatus	1
43.	Agarose Gel Electrophoresis unit with Power Supply	1
44.	Polyacrylamide Gel Electrophoresis unit with Power Supply	1
45.	Thermocycler with UPS	1
46.	Multi-well Microtitre plates for ELISA, haemmagglutination, Haemmagglutination-Inhibition, cell culture	As per need
47.	Cell culture flasks of different sizes	As per need
(27)	The Department of Veterinary Pathology shall have the following facilities, namely:-	
1.	Binocular microscopes	20
2.	Specimen slides of various histopathological lesions.	As per need
3.	Rotary microtome, with thin sectioning facility	1
4.	L'moulds and blocks or (for embedding)or Tissue capsules	As per need

5.	Paraffin flotation bath (temp. Control 55-650C)	2
6.	Hot air oven	1
7.	Refrigerator	2
8.	Slide cabinet 1000 capacity	As per need
9.	Slide boxes – 100 capacity	As per need
10.	Staining jars, coupling jars, bottles etc.	As per need
11.	Tissue cutting boards	2
12.	Racks for specimen jars, bottles etc.	20
13.	Specimens jars, wide-mouthed bottle	As per need
14.	Hot Air oven (Temp. 250^0C)	2
15.	Autopsy table for small animals	1
16.	Post Mortem instruments or equipments such as knives, scissors, chisels, saw rib cutter, scalpels with blade (assorted), shears, bone cutter, saw, sharpener, etc.	5 each
17.	Protective wear (gloves, rubber apron, goggles, gum-boots, marks & cap)	As per need
18.	Carcass trolley	1
19.	Microtome knife & knife sharpener	1
20.	Monopan digital balance	1
21.	Plastic tubs & buckets with lid for specimen collection and transport	As per need
22.	Cold room unit	Optional
23.	autoclave	1
24.	Centrifuge	1
25.	Wintrobe tube with racks	5
26.	Haemocytometer	15
27.	Phase contrast microscopes	1
28.	Cryostat (microtome)	Optional
29.	Mechanical cell counter for DLC	5
30.	Microhaematocrit centrifuge and reader	1
31.	Westergren tube with racks	5
32.	Defreeze (-20^0C)for small animals and specimens	1

(28) The Department of Animal Genetics and Breeding shall have the following facilities, namely:-

1.	Centrifuge-	1
2.	Microscopes	20
3.	Phase contrast microscope	1
4.	Slide Boxes	As per need
5.	Specimen racks, almirahs	1
6.	Storage boxes for charts, diagrams etc.	As per need
7.	Computer lab with minimum 15 to 20 computers	1

(29) The Department of Animal Nutrition shall have the following facilities, namely:-

1.	Wiley Mill	1
2.	Hot air oven	2
3.	Hot plate bench (CF estimation)	1
4.	Electronic Monopan balance	3
5.	Muffle furnace	1+1=2
6.	Desiccator	6
7.	Suction pump	1
8.	Kjeldhals digestion system	2
9.	Kjeldhals distillation system	2
10.	Soxhlet apparatus set	1
11.	Water bath	1
12.	Hot plate	2
13.	Feed Plant (desirable)	1

(30) The Department of Veterinary Pharmacology and Toxicology shall have the following facilities, namely:-

1.	Isolated tissue bath with accessories	2
2.	Observation cages for rats and mice	10 each
3.	Small animal weighing balance	1
4.	Monopan electronic balance	5
5.	Binocular microscopes	2
6.	Spectrophotometer	1
7.	Centrifuge (3000 RPM)	1
8.	Marble slabs	30
9.	Spatula (iron, plastic, and ebonite)	30
10.	Mortar and pestle (porcelain and glass)	30
11.	Measuring glasses, cylinder of various sizes	30
12.	pH meter (digital)	1
13.	Vortex shaker	5
14.	Surgical instruments pack	2
15.	Photoactometer	1
16.	Antibiotic zone reader	1
17.	Hot Plate Analgesiometer	1
18.	Rotarod or treadmill for mice	1
19.	Vernier caliper	1
20.	Plethysmometer	1
21.	Laminar flow or biosafety cabinet	1
22.	Incubator	1
23.	Autoclave	1
24.	Rat holder	20
25.	Hot air oven	1
26.	Metallic or enameled trays	25

27.	Refrigerators	2

(31) The Department of Veterinary Public Health And Epidemiology shall have the following facilities, namely:-

1.	Binocular microscope	10
2.	Serologic water baths	2
3.	pH meter	2
4.	Spectrophotometer	1
5.	Centrifuge	1
6.	Lovibond or equivalent comparator with phosphatase and resazurin disc	1 set
7.	Colony counter	2
8.	Burners	10
9.	Balance	1
10.	Electronic balance	2
11.	Autoclave	2
12.	Hot-air oven	2
13.	B.O.D. incubator	1
14.	Incubators	3
15.	Micropipettes (and tips as required)	12
16.	Deep freeze -20 ^{o}C	1
17.	Laminar flow	2
18.	Air sampler	1
19.	Data processing and programming units with networking	10
20.	Laboratory Refrigerators 500 L	3
21.	Sample Bag Mixer	1
22.	Water analysis system	1
23.	Microplate or ELISA reader	1
24.	Tissue homogenizer	1
25.	High performance liquid chromatography with accessories	1*
26.	Gas chromatography unit complete with all accessories	1*
27.	Atomic absorption spectrophotometry with all accessorie	1*
28.	Rotary shaker	1
29.	Somatic cell counter	1
30.	Vortex shaker	3
31.	Magnetic stirrer	3
32.	Biosafety cabinet level II	1
33.	*These facilities may be shared with other departments or central instrumentation or central laboratories.	

(32) The Department of Veterinary Parasitology shall have the following facilities, namely:-

1.	Autoclave	

2.	Hot air oven	1
3.	Refrigerator	2
4.	Binocular microscope with high power Oil immersion with light attachment	30
5.	Phase Contrast Microscope	1
6.	Centrifuge	4
7.	Multiple eyepiece demonstrator or Multihead Microscope	1
8.	Eyepiece comparison	1
9.	Slide cabinet	3
10.	Slide Boxes	15
11.	Desiccators	3
12.	Total Counter	2
13.	Dissection Set	5
14.	Stereoscope	15
15.	Stereo zoom microscope	1
16.	Mc Master Slide	10
17.	Baermann's Apparatus	5
18.	Deep Freezer	1
19.	Trinocular microscope	1
20.	Sweeping net or Fly catching net	As per need
21.	Insect Killing Jar	-do-
22.	Light traps	-do-
23.	Insect Boxes	-do-
24.	Spray pump	-do-
25.	Weighing Balance (digital)	-do-
26.	Micrometer Stage	-do-
27.	Micrometer - Eye piece	-do-
28.	Aspirator	-do-
29.	Insect rearing cages	-do-
30.	Staining rack	-do-
31.	Digital pH meter	-do-
32.	Museum racks	-do-
33.	Steel almirah (Big size) for storing microscope	-do-
34.	Digital Camera	1
35.	BOD Incubator	1
(33)	The Department of Livestock Products Technology shall have the following facilities, namely:-	
1.	Abbe Rofrectometer	1
2.	Autoclave	1
3.	Balance for weighing birds	1
4.	Butchering sets (knives etc.)	5
5.	Butter churners	1

6.	Butyrometer	50
7.	Cream separator	1
8.	Deepfreeze	1
9.	Electronic monopan balance	1
10.	Impulse sealer	1
11.	Food processor	1
12.	Gerber's centrifuge	1
13.	Hot air oven	2
14.	Hot water bath	1
15.	Meat mincing machine	1
16.	pH meter digital	2
17.	Pressure cooker	2
18.	Refrigerator	1
19.	Sausage filler	1
20.	Small animal balance	1
21.	Student microscope	1
22.	Electrical Stunning device	1
23.	Bleeding cone	2
24.	Scalding Tank	1
25.	Defeathering machine	1
26.	Evisceration Table	1
27.	Portioning machine	1
28.	Vernier Calliper	10
29.	Ermascope	1
30.	Lactometer	50
31.	Screw gauze	10
32.	Spherometer	10
33.	Captive bolt pistol	1
(34)	The Department of Veterinary and Animal Husbandry Extension Education shall have the following facilities, namely:-	
1.	Overhead Projector with Screen 72"×96"	1
2.	LCD projector with screen	1
3.	Multimedia Projector	1
4.	Visualizer	1
5.	Public address system	1
6.	Computer lab with internet facilities	15
7.	Interactive Board	1
8.	Interactive Panel	1
9.	Digital camera	2
10.	Video Camera (HD)	1
11.	Vehicle for field visit (35 seaters)	Optional

12.	Digital Audio Recording Unit with accessories and software	1
13.	Video editing Unit with software	1
14.	LED 50" Monitor	1
(35)	The Department of Veterinary Surgery and Radiology shall have the following facilities, namely:-	
1.	Operation table for small animals stainless steel top	2
2.	Small animal preparation tables stainless steel top	2
3.	Dressing drums (small)	5
4.	Dressing drums (large)	4
5.	Instrument or syringe sterilizers	3
6.	Stainless steel trays 12”x15”xor15”x18”	6
7.	Stainless steel trays 8”x10”	8
8.	Scissors 8”or10” clipping	2
9.	Scissors dressing	4
10.	Forceps cheatle	4
11.	Lamps (shadow-less)	4
12.	Intravenous drip stands	8
13.	Foot or Elbow soap dispenser	4
14.	Mouth Gag (Small Animal)	4
15.	Mouth Gag (Large Animal)	2
16.	Endotracheal tubes (cuffed and non-cuffed) (Small Animals)	6
17.	Endotracheal tubes (cuffed and non-cuffed) (Large Animals)	2
18.	Small animal anaesthetic machine with aporizer	1
19.	Large animal anaesthetic machine with vaporizer	1
20.	Ambu’s respirator	1
21.	Electrocardiogram battery operated or portable	1
22.	Catheters, manometers etc.	As per need
23.	Cotton tapes for control of animals	As per need
24.	Positioning pads	4
25.	Surgical pack for small animals	As per need
26.	Surgical pack for large animals	As per need
27.	Gloves and other rubber wares	As per need
28.	Trevis for calves, adult ruminants, horse etc.	As per need
29.	Large animal trolley-cum-operation tables	As per need
30.	Operation tables for calves with drain	As per need
31.	Autoclave	2
32.	Instrument cabinets	As per need
33.	Orthopedic instruments Complete set for pinning and plating	1
34.	Ophthalmic instruments o rscopes etc.	One set
35.	Dental instruments for Large and small animals	One set for each
36.	Teat and udder instruments	As per need

37.	Complete Endoscopy unit (rigid and flexible)	1 unit
38.	Laparoscopy unit	1 unit
39.	Refrigerator	2
40.	Weighing instruments or scale	1 set
41.	Biopsy instruments	1
42.	Electro surgery units	As per need
43.	Cautery sets	1
44.	Electric stimulat or sorgalvanize, faradic etc.	As per need
45.	Short-wave or micro-wave diathermy unit with disc pad and coil electrodes	1
46.	Ultra-sonic stimulat or sortherapy units	1
47.	X-ray unit 500 Ma, 150 Kvp over-head trolley model	1
48.	X-ray unit trolley model with 'C' arms fluoroscope, image-intensifier	1 (Optional)
49.	Spot-films, video-recording and image freezing facility	1(Optional)
50.	Ultra-sonic diagnostic unit with video recorder	1(Optional)
51.	Ultraviolet lamp	1
52.	Infra-red lamps	1
53.	X-ray accessories, cassettes, film-carrier, dividers, grids, Intensifying screens (rare-earth preferred).	As per need
54.	Protection gadgets (film-badges, lead gloves, lead aprons, goggles, lead screens)	As per need
55.	Dark-room accessories (processing tank, dryer, hangers, Safety lamps, filmstorage box, film-exchange windows, speaking grill, dark-room exhaust etc.	As per need
56.	Animal transport trolley for large animals	1 (Optional)
57.	Stretcher for small animals	1
58.	Glass-ware, syringes, drugs, medicine, etc.	As per need
59.	X-ray film viewers	4
60.	X-ray film museum with film record-racks	1
61.	Different equipment for restraining of animals	1 set
62.	Computerized Radiography system with accessories	1 (Optional)
63.	Laryngoscopes for small animals	1
64.	Laryngoscopes for large animals	1
65.	Multiparameter monitors for small animal or Vital signs monitor for small animals	1 (Optional)
66.	Multiparameter monitors for large animal or Vital signs monitor for large animals	1
67.	Otoscope	1 (As per need)
68.	Trephiner	2
69.	Weingarth's Rumenotomy set	2
70.	Probang	2
71.	Naso-gastric tube	2

72.	Tracheotomy tubes	2
73.	Muscle retractors	2
74.	Gastric clamps	2
75.	Intestinal clamps	2
76.	Hobbles set	1 set
77.	Suction apparatus	I
78.	Patient heating device	1 (Optional)
79.	Electrical clippers	2
80.	Ultrasound Dental scaler	1
81.	Fluid warmer	1
82.	Infusion pump	1 (As per need)
83.	Ethylene oxide sterilizer	1
84.	Hoof instruments	1 set
(36)	The Department of Veterinary Medicine shall have the following facilities, namely:-	
1.	Microscopes – bionocular	10
2.	Centrifuges ordinary	2
3.	Animal weighing balance	As per need
4.	Electronic monopan balance	2
5.	Digital pH meters	2
6.	Microhaematocrit centrifuge with tube set	1
7.	Incubators	1
8.	Hot-air Ovens	1
9.	Water baths	1
10.	Dark field microscope	1
11.	Autoclave	1
12.	B.O.D. Incubator	1
13.	Stethoscopes with multiple ear-pieces	3 sets
14.	Beaker, flask, pipettes etc.	As per need
15.	Examination Table for Small Animals – Stainless steel	6
16.	Drip stands	8
17.	Vernier calliper	5
18.	Tuberculin syringe	10
19.	Neubauer slides	10
20.	Electrophoresis unit	1
21.	Refractometer	3
22.	Elisa reader	1
23.	Thermocycler	1
24.	Micropipettes assorted	3 x 5
25.	Laminar flow	1
26.	Electrical conductivity meter	2

27.	Dart gun	1
28.	Endoscopy Unit	1 set
29.	Ophthalmoscope direct hand held	3
30.	Otoscope	2
31.	BP Apparatus	2
32.	Vital signs monitor	1
33.	Infusion Pump	1
34.	Cooling centrifuge	1
35.	Refrigerator	2
36.	Deep Freezer	1
37.	Biochemical auto analyzer	1
38.	Electrolyte analyzer	1
39.	Urine analyzer	1
40.	Clinical haematology analyzer	1
41.	ECG machine	2
42.	Ultrasonography	1
43.	Oxygen saturator	1
44.	High speed centrifuge	1
45.	Gradiant PCR	1
46.	Rumen Fluid extraction pump	1
47.	Suction Pump	1
48.	Urinometer	5
49.	Biopsy needles	As per need
50.	Mouth Gag	2
51.	Stomach tube	6

(37) The Department of Veterinary Gynaecology and Obstetrics shall have the following facilities, namely:-

1.	Examination table for small animals	04
2.	Intravenous stand	04
3.	Instrument trolley	02
4.	Instrument cabinet	02
5.	Vaginal speculum for different species of animals	02 no. each
6.	Uterine biopsy catheter	02
7.	Ultrasound machine with multi frequency, colour Doppler with rectal and abdominal probe	01
8.	Enema can	02
9.	LN2 containers portable and Large capacity(3L,5L,20L)	01 each
10.	Auto clave	01
11.	Hot air oven	01
12.	Obstetrical Sets for large and small animals	1 each
13.	Binocular student microscope	25
14.	Haemocytometer	25

15.	Inverted microscope	01
16.	Phalton Box	01
17.	Artificial vaginal for semen collection in different species of animals	10sets
18.	Electro ejaculator for different species (Bull, Ram, Dog) each	02
19.	Semen filling, Printing and sealing equipment	01(Optional)
20.	Semen freezing container	01(Optional)
21.	Latex liner, cone, insulation bag for AV	02
22.	Refrigerators	01
23.	AI Guns for different species	04 set each
24.	pH meter	01
25.	glass wares and Chemicals and Stains as required	01
26.	Specimen jars	40
27.	Slide warmer	01
28.	Deep freezer	01
29.	Intrauterine catheters	10
30.	Urinary catheter	04
31.	Table for Genitalia palpitation	As per need

(38) The Veterinary Clinical Complex shall have the following facilities, namely:-

1	Travis-Large Animal	5
2	Travis -Equine	1
3	Wheelbarrow	4
4	Drip stands	20
5	Dart gun	2
6	Hydraulic examination table-small and large animals	1+4
7	Examination tables for Small Animal	4
8	Instrument trolleys	8
9	LED projector with Computer System	1
10	Stretchers for Dogs or Cats	3
11	Movable Slings –Large Animal	2
12	Movable Slings- Small Animal	2
13	Weighing machine for small and large animals	1 each
14	Temperature controlled Room for Hyperthermic or hypothermic patients	1
15	Stretchers for small animals	2
16	Intensive care unit (for small & Large animals)	1+1
17	Hydrolic lift	1

(39) The Medicine Section shall have the following facilities, namely:-

1.	Stethoscopes with multiple ear piece	6 sets
2.	CMT paddles with reagents	3 sets
3.	Mouth gag- large Animal	3

4.	Mouth gag- Small Animal	2
5.	Nasogastric tubes- Horse	3
6.	Stomach tubes (For Ruminants)	3
7.	Stomach tubes (For Dogs or Cats)	3
8.	Trochar and canula	5
9.	Phonendoscopes	4
10.	Pleximeters and percussion hammers	4
11.	Electrocardiogram (Portable Model)	1
12.	Blood pressure apparatus	3 sets
13.	Opthalmoscope direct hand held	2
14.	Otoscopes	2
15.	Laryngoscopes	2
16.	Oesophagoscopes	2
17.	Tracheoscopes	2
18.	Haemodialysis unit	As per area need
19.	Refrigerator	1
20.	Stainless steel strilizer	1
(40)	The Gynaecology Section shall have the following facilities, namely:-	
1.	Oestrus detector	5
2.	Vaginal speculum for different species of animals	As per area need
3.	Uterine biopsy catheter	01
4.	Ultrasonography machine with rectal and abdominal probe	01
5.	LN_2 containers portable and large capacity (3L, 5L, 20L)	1 each
6.	Vaginoscope	1
7.	Obstetrical instruments	3 sets
8.	Fetotomy instrument (Thygeson's fetotome)	2 set
9.	Embryotomy knife	2
10.	Wire saw guider	2
11.	Snares (1.5 meters long)	10
12.	Long and short handle analoreye hook	2 for each
13.	Wire saw	As per need
14.	AI guns for different species	As per area need
15.	Specimen jars	30
16.	Intrauterine catheter	05
17.	Urinary catheter	05
18.	Biological incubator for neonatal calf	01

19.	Suction pump for uterine fluid	01
20.	Surgical packs for small and large animal caesarean section	5 each
21.	Hind Quarter elevator	1
(41)	The Surgery Section shall have the following facilities, namely:-	
1.	Endoscopy unit	2
2.	Infusion pump	1
3.	Oxygen saturator	1
4.	Rumen Fluid Suction pump	1
5.	Shadow less OT lights	2
6.	Small animal preparation tables stainless steel top	2
7.	Dressing drums (small)	8
8.	Dressing drums (Large)	4
9.	Instrument orsyringe sterilizers	3
10.	Stainless steel tray 12" ×15" ×or15×18"	6
11.	Stainless steel tray 8" ×10"	8
12.	Scissors 8"or10" clipping	2
13.	Lamps(Shadow-less with LED light)	2
14.	Foot or Elbow soap dispenser	4
15.	Endotracheal tubes (cuffed and non-cuffed) (Small Animals)	6
16.	Endotracheal tubes (cuffed and non-cuffed) (Large Animals)	4
17.	Small animal anaesthetic machine with vaporizers	1
18.	Large animal anaesthetic machine with vaporizers	1
19.	Ambu's respirator	2
20.	Electrocardiogram battery operated or portable	1
21.	Catheters , manometers etc.	As per need
22.	Positioning pads	8
23.	Surgical pack for small animals	6
24.	Surgical pack for Large animals	8
25.	Operation tables for calves with drain	2
26.	Autoclave	2
27.	Instruments cabinets	4
28.	Orthopedic instruments complete set for pinning and plating	2
29.	Ophthalmic instruments or scopes etc.	As per area need
30.	Dental instrument for large and small animals.	One set for each
31.	Teat and udder instruments	2 set or as per need
32.	Electro surgery unit	2

33.	Cautery sets	2
34.	Short wave or micro-wave diathermy unit with disc pad and coil electrodes	1
35.	Ultra-sonic stimulators or therapy units	1
36.	Ultrasonography machine	1
37.	Ultraviolet lamp	1
38.	Infra-red lamps	1
39.	X-ray film viewers	2
40.	Computerized radiography system with accessories	1
41.	Laryngoscope for small animals	1
42.	Laryngoscope for large animals	1
43.	Trephiner	2
44.	Weingarth's Rumenotomy set	6
45.	Muscles retractors	2
46.	Gastric clamps	2
47.	Intestinal clamps	2
48.	Hobbles set	2
49.	Different size of cannula (For large and small animal)	As per need
50.	Dog catching net	10
51.	Food and water bowl for dogs	10
(42)	The Veterinary Diagnostic Laboratory shall have the following facilities, namely:-	
1.	Haemocytometers	20
2.	Haemoglobinometers	20
3.	Centrifuge (ordinary)	1
4.	Microhaematocrit centrifuge with tubes set	1
5.	Microscope (Compound-Binocular)	10
6.	Glasswares	As per need
7.	Biopsy needles	As per need
8.	Electrical conductivity meter for mastitis	2
9.	Laminar Flow	1
10.	Incubator (Normal +BOD)	1+1
11.	Deep freezer (-20^{o}C)	1
12.	Hot Air Oven	1
13.	Refrigerator	2
14.	Autoclave	2
15.	Microwave Oven	1
16.	pH meter (Digital type)	4

17.	Common Balance	2
18.	Electronic monopan Balance	1
19.	Microscope with Projector for teaching lab	1
20.	Vernier Calliper	5
21.	Neubauer slides	10
22.	Micropipettes (Assorted)	3x5
23.	Biochemical Auto analyser	1
24.	Electrolyte Analyzer	1
25.	Urine Analyzer	1
26.	Clinical haematology analyser	1
27.	Diagnostic Kits for Infectious pathogens	As per need
28.	Magnetic stirrer	1
29.	Vortex Mixer	1

(43) The Livestock Farm Complex shall have the following facilities, namely:-

1.	Sprayer	1
2.	Shearing and clipping equipment	1 set
3.	Debeaking equipment	1
4.	Tattooing set tags	1
5.	A I equipment (different species)	1set each
6.	Egg Candler	1
7.	Incubator (Hatchery)	1
8.	Battery Brooder	1
9.	Trap nest	5
10.	Egg Grading Machine	1
11.	Milking Machine Set	1
12.	Chick sexing machine	1
13.	Automatic scalder	1
14.	Vernier Callipers	5
15.	Screw Gauge	5
16.	Maximum-Minimum Thermometer	2
17.	Psycho-meter	1
18.	Hair Hygrometer	1
19.	Milking cans	2
20.	Milking piles	2
21.	Milk measures	1
22.	Cream separator	1
23.	Butter churns	1
24.	Branding set	1
25.	Castrator (for different species)	1

26.	Electric clipper	1
27.	Tractor, Farm Equipment and Implement, Machinery like chaff cutter etc.	As per need
28.	Microchip reader	1

PART VII

GRADING SCHEME FOR VETERINARY COLLEGES

23. **Score sheet for calculating the weightage of the available physical facilities and manpower at a veterinary college as per the MSVE Regulations to be evaluated by the council on the basis of the inspection conducted under section 19 of the IVC Act'84.**

Sl. No.	Indicators for the Assessment	Maximum Score	Score Obtained
1.	INFRASTRUCTURE	500	
	(a) Total land available Score will be given proportionate to the fulfillment of Veterinary Council of India specifications, Quality of Construction, Cleanliness and Beautifications of the Campus (may be scored on the basis of requirement Fulfilling the standard space or more – score of 40 Just Fulfilling the standard space – score of 30 Less than the standard space – score of 20)	40	
	(b) Building of the college Fulfilling the standard space or more – score of 50 Just Fulfilling the standard space – score of 40 Less than the standard space – score of 30	50	
	(c) Veterinary college • Government or Own building and land. – score of 50 • On lease – score of 40 • On shared basis – score of 20	50	
	(d) Veterinary Clinical Complex (VCC) • Government or Own building and land – score of 50 • Outreach center – score of 40 • On lease – score of 30 • On shared basis – score of 20	50	
	(e) Livestock Farm Complex (LFC) • Government or Own building and land – score of 50 • On lease – score of 40 • On shared basis – score of 20	50	
	(f) Library • Space and seating capacity: Max Score 15 • Number of books: Max Score 15 • Number of periodicals or journals or reports: Max Score 5 • Computer or internet facilities: Max Score 10 • Reprographic facilities: Max Score 5	50	
	(g) Hostel (a) Facilities for No. of student accommodation Max. Score: 20 80% and above – 20 70 – 79% – 10 40 – 69% – 5 (b) Amenities in hostel Max. Score: 10	30	

	(h) Common facilities (a) No. of Classrooms with seating capacity and audiovisual aids - Max. Score: 5 (b) Auditorium - Max. Score: 5 (c) Examination Hall - Max. Score: 5 (d) Central Instrumentation facility - Max. Score: 5 (e) Experimental animal unit - Max. Score: 5 (f) Seminar or Conference Room - Max. Score: 5 (g) Transport facilities - Max. Score: 5 (h) Central College Diagnostic Lab.- Max. Score: 5 (i) Maintenance Unit - Max. Score: 5 (j) Sports grounds - Max. Score: 5	50	
	(i) Residential accommodation For staff and for essential or emergency service of LFC & VCC 80% and above – 30 70 – 79% – 20 40 – 69% – 10	30	
	(j) Laboratory space availability (a) Laboratory space: Max. Score: 50 80-100% of recommended space - 40-50 70-79% of recommended space - 30 60-69% of recommended space - 20 50-59% of recommended space - 10 <50% of recommended space - 5 (b) Laboratory equipment: Max. Score: 50 80-100% of recommended equipment 40-50 70-79% of recommended equipment 30 60-69% of recommended equipment 20 50-59% of recommended equipment 10 <50% of recommended equipment 5	100	
2.	LIVESTOCK FARM COMPLEX	100	
	Total farm land area, Max. Score: 25 80-100% as recommended by Veterinary Council of India - 25 70 – 79% as recommended by Veterinary Council of India - 20 60 – 69% as recommended by Veterinary Council of India - 15 50 – 59% as recommended by Veterinary Council of India - 10 <50% as recommended by Veterinary Council of India - 5 Species-wise no. of livestock, Max. Score: 50 80-100% as recommended by Veterinary Council of India - 50 70 – 79% as recommended by Veterinary Council of India - 40 60 – 69% as recommended by Veterinary Council of India - 30 50 – 59% as recommended by Veterinary Council of India - 20 <50% as recommended by Veterinary Council of India - 10 Major farm implements, fodder production Max. Score: 25 80-100% as recommended by Veterinary Council of India - 25 70 – 79% as recommended by Veterinary Council of India - 20		

	60 – 69% as recommended by Veterinary Council of India - 15 50 – 59% as recommended by Veterinary Council of India - 10 <50% as recommended by Veterinary Council of India - 5		
3.	VETERINARY CLINICAL COMPLEX	100	
	(a) Average numbers of cases per month: Max. Score: 40 > 500 case - 40 400-499 - 30 300-399 - 20 200-299 - 10 <200 - 5 (b) Indoor patient facilities: Max. Score: 20 (c) Diagnostic facilities: Max. Score: 20 (d) Ambulatory services: Max. Score: 20		
4	MANPOWER	500	
	1. Teaching		
	(a) Number of faculty in position: Max. Score: 250 80 and above 250 70 - 80 225 65 - 70 200 60 - 64 175 55 - 59 150 50 - 54 125 45 – 49 100 < 40 50	250	
	(b) Faculty with Ph. D. qualification: Max. Score: 100 90-100% Score: 100 80-89% Score: 90 70-79% Score: 80 60-69% Score: 70 50-59% Score: 60 <50% Score: 50	100	
	(c) Per cent of total faculty attended 7-21 days trainings or workshop in the 5 years: Max. Score: 30 80-100% Score: 30 70-79% Score: 25 60-69% Score: 20 50-59% Score: 15 < 50% Score: 10	30	
	(d) Papers published and awards and distinctions by faculty in a year during preceding 5 years: Max. Score: 20 2orFaculty Score: 20 1orFaculty Score: 15 <1orFaculty Score: 10	20	
	2. Non-teaching Technical and Secretarial (Details to be decided for graded scores)	100	

5.	INTERNSHIP	100	
	(a) Places of postings & duration (if as per Veterinary Council of India) Max. Score: 30 (b) No. of clinical cases dealt by a class or year Max. Score: 30 1500 cases & above - 30 1200 – 1499 - 25 1000 – 1199 - 15 <1000 - 0 (c) Farm to which a batch is exposed – Max. Score: 10 (d) Visit to LPT or BP Unit or Zoo or DI activities etc – Max. Score: 10 (e) Entrepreneurial training - Max. Score: 20		
6.	ACADEMIC ACTIVITIES	50	
	Following of prescribed syllabus - Max Score – 10 Following of prescribed calendar - Max Score – 10 Academic atmosphere - Max Score – 10 Innovative teaching methodologies - Max Score – 10 Alternate use of animals - Max Score – 10		
7.	EXAMINATION	20	
	Examination conducted as per Veterinary Council of India Regulations Max. Score: 20 Any deviation in any component shall lead to deduction by 50% score		
8.	ACADEMIC PERFORMANCE	100	
	(a) Percentage of pass or fail - Max. Score: 10 (b) Percentage of student scoring OGPA more than 7or10 in final Bachelor of Veterinary Science and Animal Husbandry - Max. Score: 10 (c) Percentage of students selected for national fellowships for PG programmes in Veterinary Sciences or other competitive examinations - Max. Score: 40 (d) Percentage of students selected for jobs - Max. Score: 40		
9.	EXTRACURRICULAR ACTIVITIES	15	
	Awards received in Inter-university or State or National or International Competitions Score will be given according to the actual achievement		
10.	ANY OTHER INSTITUTION SPECIFIC ACTIVITIES	15	
	CVE or Refresher course or other trainings Max. Score: 20 Symposium or Seminar or Workshop or Kisan Mela etc. Max. Score: 10		

Scheme of grading

1200 to 1500	A
900 to 1199	B
600 to 899	C
300 to 599	D

Name & signature	Name & signature	Name & signature
Inspector 1	Inspector 2	Inspector 3

Annexure – I

Serial No. **----------** Admn. No. ----------

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_____

(NAME OF THE DEGREE AWARDING UNIVERSITY)

SEAL

TRANSCRIPT

	Name: ---------- **Father's Name**: ---------- **Mother's Name**: ----------								
	Name of College: College of Veterinary Sciences _____ **Degree Programme**: Bachelor of Veterinary Science and Animal Husbandry (B.V.Sc. & A.H.)								
	Admitted in: **Completed in**: **Last Institution Attended**:								
S. No.	Subject	Credit Hrs.	Marks obtained				Total (100)	Grade Point (10 Point Basis)	Credit Points
			Internal Assessment		Annual				
			First (10)	Second (10)	Theory (40)	Practical (40)			
FIRST PROFESSIONAL									
1	Veterinary Anatomy	4+3	7.0	6.0	25.0	28.0	66.0	6.60	46.20
2	Veterinary Physiology	4+1	6.5	7.5	28.0	32.0	74.0	7.40	37.00
3	Livestock Production Management	4+2	7.5	7.0	30.0	33.0	77.5	7.75	46.50
4	NCC or NSS or CCA	0+1 (NC)	-	-	-	-	-	-	**S**
SECOND PROFESSIONAL									
1	Veterinary Pathology	4+2	7.5	7.5	25.0	32.0	72.0	7.20	43.20
2	Veterinary Biochemistry	2+1	7.5	6.5	29.0	29.0	72.0	7.20	21.60
3	Veterinary Microbiology	3+2	7.0	8.0	25.0	33.0	73.0	7.30	36.50
4	Animal Genetics & Breeding	3+1	8.0	7.5	29.0	32.0	76.5	7.65	30.60
5	Animal Nutrition	3+1	7.5	8.0	31.5	35.0	82.0	8.20	32.80
6	NCC or NSS or CCA	0+1 (NC)	-	-	-	-	-	-	**S**
THIRD PROFESSIONAL									
1	Veterinary Pharmacology & Toxicology	4+1	7.0	6.5	26.0	34.0	73.5	7.35	36.75
2	Veterinary Parasitology	3+2	6.5	7.0	30.0	35.0	78.5	7.85	39.25
3	Veterinary Public Health	3+1	8.0	7.0	25.0	32.0	72.0	7.20	28.80
4	Livestock Products Technology	2+1	7.5	7.5	28.0	35.0	78.0	7.8	23.40
5	Veterinary Extension Education	3+1	8.0	7.0	30.0	35.0	80.0	8.0	32.00
6	Veterinary Clinical Practice	0+1	40or50		40or50		80.0	8.00	8.00
7	Livestock Farm Practices	0+2	42or50		43or50		85.0	8.5	17.00
	NCC or NSS or CCA	0+1 (NC)							**S**

FOURTH PROFESSIONAL									
1	Veterinary Surgery & Radiology	2+1	6.5	8.0	26.5	34.0	75.0	7.50	22.50
2	Veterinary Medicine	4+1	7.5	7.5	28.0	35.0	78.0	7.80	39.00
3	Veterinary Gynaecology & Obstetrics	2+1	8.0	7.0	25.0	35.0	75.0	7.50	22.50
4	Veterinary Clinical Practice	0+6	-	-	-	70.0	70.0	7.00	42.00
FIFTH PROFESSIONAL									
1	Internship Programme								S

Grand Total of Credit Hours: 81 Grand Total of Credit Points: 604.60

(NC) Non Credit Hours: 2

Over All Grade Point Average (OGPA): 7.460or10.00 Percentage of Marks: 74.60%

RESULT: PASSED WITH FIRST DIVISION CONDUCT: SATISFACTORY

*Cleared with Compartment

**Failed in First or Second or Third or Fourth year

***Internship extended or repeated

DATE: Assistant Registrar (Academic)

Signature with Seal

(Overleaf)

Calculation of Grade Point (GP), Credit Point (CP), Grade Point Average (GPA) & Overall Grade Point Average (OGPA)

- **GP** in a subject will be the total marks obtained by a student out of 100 divided by 10.
- **CP** in a subject will be GP multiplied by the credit hrs.
- **GPA** = Sum of the total credit points earned divided by the sum of credit hrs.
- **OGPA** = Sum of the grand total credit points earned divided by the grand sum of credit hrs.
- **Percentage of Marks** = OGPA multiplied by 10

NOTE:

1. **Evaluation**

   Overall performance of the student in various examinations including the internal and annual examination by securing 50% in theory and practical separately shall be the criterion of passing or failing in a subject. A student is required to secure an aggregate of 50% marks in theory and an aggregate of 50% marks in practical to be declared to have passed in a subject. If a student fails in two subjects only, he or she is eligible to appear in the compartment examination of those subjects which shall include the components of annual theory and practical examination only.

2. **Division**

Pass	OGPA 5.000-5.999
Second Division	OGPA 6.000-6.999
First Division	OGPA 7.000-7.999
First Division with Distinction*	OGPA 8.000 and above

3. In case a student has passed a subject through compartment examination, the same be mentioned against the particular subject in the transcript.
4. In case a student fails in a particular year, the same be mentioned in transcript.
5. If the internship is extended or repeated, the same be mentioned in transcript

Annexure-II

Serial No. **----------** Admn. No. ----------

(NAME OF THE DEGREE AWARDING UNIVERSITY)

SEAL

DETAILED MARKS CERTIFICATE

FIRST PROFESSIONAL (B. V. Sc. & A. H.)

Name: ---------- Father's Name: ----------

Mother's Name: ---------- Academic Year: ----------

Subject	Credit Hrs.	Marks obtained				Total (100)	Grade Point (10 Point Basis)	Credit Points
		Internal Assessment		Annual				
		First (10)	Second (10)	Theory (40)	Practical (40)			
Veterinary Anatomy	4+3	7.0	6.0	25.0	28.0	66.0	6.60	46.20
Veterinary Physiology	4+1	6.5	7.5	28.0	32.0	74	7.4	37.00
Livestock Production Management	4+2	7.5	7.0	30.0	33.0	77.5	7.75	46.50
NCC or NSS or CCA	0+1 (NC)							**S or US**

CURRENT: Total Credit Hrs: 18 Total Credit Points Earned: 151.30 GPA: 7.204

CUMMULATIVE: Total Credit Hrs: Total Credit Points Earned: OGPA: 7.204or10.00

RESULT:

1. Pass with Grade Point Average (GPA)
2. * Cleared with compartment.
3. Fail

Assistant Registrar (Academic)

for Registrar

Calculation of Grade Point (GP), Credit Point (CP), Grade Point Average (GPA) & Overall Grade Point Average (OGPA)

- **GP** in a subject will be the total marks obtained by a student out of 100 divided by 10.
- **CP** in a subject will be GP multiplied by the credit hrs. The credit points earned will be zero if the GP in a subject is less than 5.00)
- **GPA** = Sum of the total credit points earned divided by the sum of credit hrs.
- **OGPA** = Sum of the grand total credit points earned divided by the grand sum of credit hrs.

T. P. SINGH, Assistant Secy.

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