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FOREWORD

Animals are an important component of economy and ecosystem. Economy in general and rural agrarian economy in particular greatly depends on contributions from the livestock sector. Looking at the contributions of livestock in economy and to accord distinct priorities to education, research and development in animal sciences, a number of veterinary and animal sciences universities have been established by carving them out from the state agricultural universities. Increasing farmers income is a major challenge and livestock are supposed to play an assertive role in this direction. The Bihar Animal Sciences University envisages transforming the rural agrarian economy of Bihar into a high income – high growth sector through teaching, research, extension in animal sciences. Distribution of livestock is fairly more equitable in comparison to arable land and thus, education in animal sciences is indeed a potential tool for transformation of the society through inclusive growth and development.

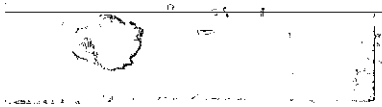
Veterinary education in India is passing through a paradigm shift. Development of skills along with instilling knowledge among the students has occupied the centre stage of educational policy. In its endeavour to promote growth in livestock sector, the university offers education in veterinary and animal husbandry in accordance to the new guidelines of Veterinary Council of India 2016.

The academic regulation plays vital role in streamlining and facilitating the academic activities of the university. The academic regulations prescribed here for the undergraduate programmes in Veterinary and Animal Sciences, BASU includes academic rules and regulation, which have been incorporated after discussions and deliberations in a series of meetings of the committee for preparation and finalization of Academic Regulations for the BASU. In fact, the academic regulations mentioned in this manuscript are the outcomes of the scrupulous discussion and of the Academic council, a regulatory body dealing with the issues related with academics.

The purpose of designing and publishing the manual on Academic Regulation for undergraduate programme is to acquaint the students regarding rules, regulations and related issues for completing the courses and awarding degrees and develop respect for the discipline in the campus during the programme.

I feel extremely honoured to the Hon' ble Vice- Chancellor, Dr. Rameshwar Singh for his persistent guidance and constant support in the finalization and publication of Academic Regulations. The untiring efforts and support of the committee members are also gracefully acknowledged. I am thankful to Dr. J. K. Prasad, Dean, Bihar Veterinary College, Patna. I also thankfully appreciate the efforts and contributions of Dr Ravi Ranjan Kumar Sinha, Assistant Professor, LPM; Dr. P Kaushik, Assistant Professor, VPHE and Dr Ajeet Kumar, Assistant Professor, Vety. Parasitology. I also appreciate the efforts and suggestions of Dr Awadhesh Kumar Jha, Assistant Professor, SGIDT who has been very instrumental in finalization of this academic regulation.

Prof. (Dr.) Veer Singh
DRI- cum- DEAN, PGS &
Chairman of RRI of UG and PG



ACADEMIC REGULATIONS

FOR

BACHELOR OF VETERINARY SCIENCE

AND ANIMAL HUSBANDRY (B. V. Sc. & A. H.)

DEGREE COURSE

(As per Minimum Standards of Veterinary Education Regulations 2016 of Veterinary Council of India)

Bihar Veterinary College

Bihar Animal Sciences University (BASU), Patna

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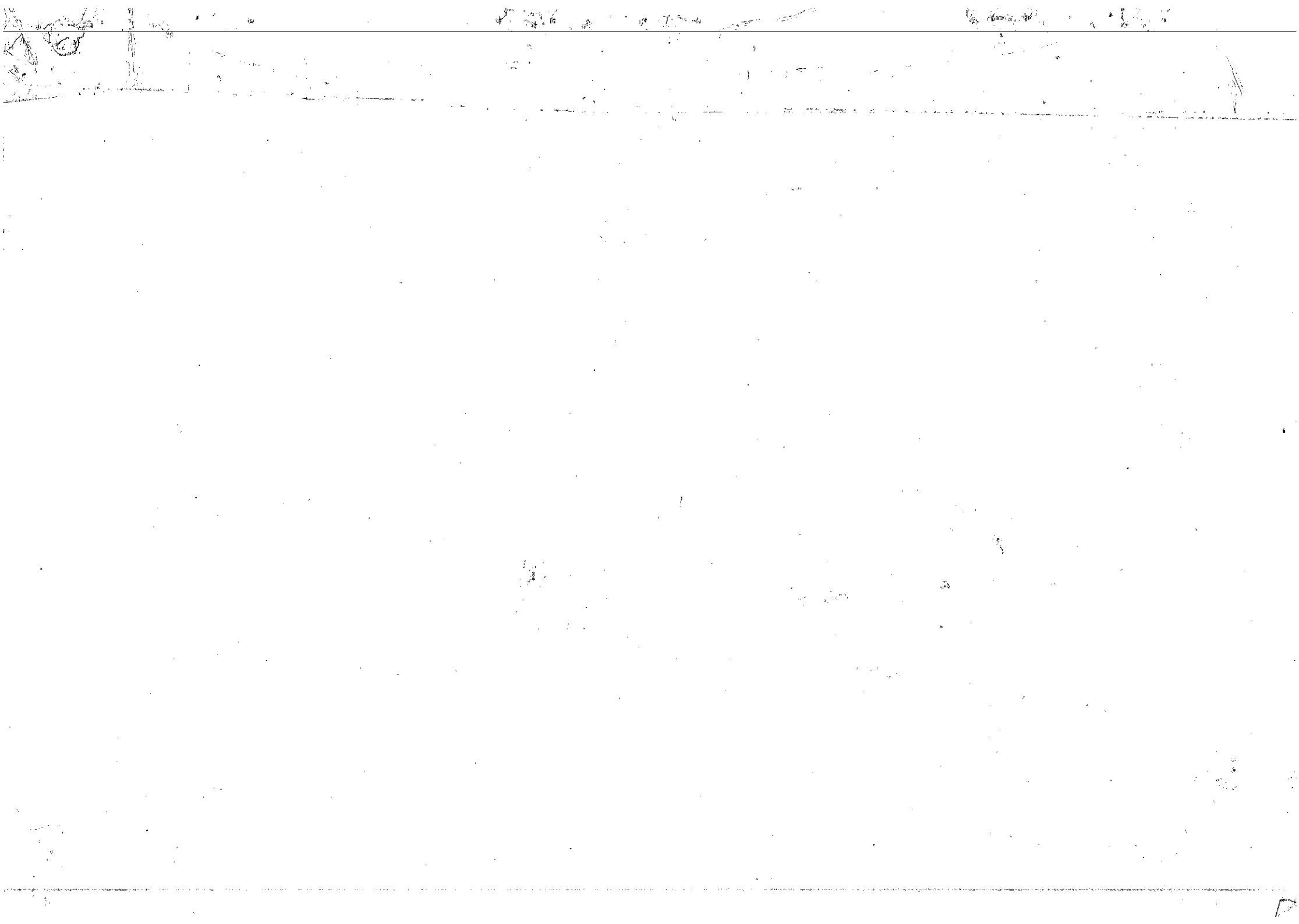

	PART – I: PRELIMINARY
1.	**Short Title and Commencement:**
(i)	These regulations may be called the BVC Academic Regulations-2020 for B. V. Sc. & A. H. Degree Course of 'Bihar Animal Sciences University (BASU), Patna' for the award of B. V. Sc. & AH. Degree Course'.
(ii)	These Regulations are in accordance with the Veterinary Council of India - Minimum Standards of Veterinary Education – Bachelor of Veterinary Science & Animal Husbandry Degree Course Regulations- 2016. (MSVE - 2016)
(iii)	They shall come in force from the academic year 2020-2021 and shall be applicable to all the students getting admission from the year 2020-2021 and onwards including those seeking readmission in BVSc and AH 1st professional during 2020-21 and/or thereafter.
2.	**Definitions:** In these regulations unless the context otherwise requires :-
(a)	**'Act'** means the Indian Veterinary Council Act, 1984 (52 of 1984)
(b)	**'Advisor'** means an academic staff member who will help a batch of students assigned to him/her in planning of their studies and foster close personal relationship;
(c)	**'Course'** means teaching units of a subject to be covered within a professional year as prescribed by the VCI in the syllabus of a department;
(d)	**'Course Content'** means a concise outline of the subject-matter of a course;
(e)	**'Credit Hour'** means the weekly unit of work recognized 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;
(f)	**'Credit load'** means the quantum of credits undertaken by a student in a year;
(g)	**'Credit Point (CP)'** in a course means the GP multiplied by the credit hours;
(h)	**'Degree Course'** means the course of study in Veterinary Science, namely - B. V. Sc. & A. H. (Bachelor of Veterinary Science and Animal Husbandry) ;
(i)	**'First Schedule'** and **'Second Schedule'** means the First Schedule and Second Schedule respectively appended to the VCI Act 1984;
(j)	**'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;
(k)	**'Grade Point (GP)'** in a course means the percentage of marks obtained by a student divided by 10;
(l)	**'Grade Point Average (G.P.A.)'** means the sum of total credit points earned divided by the sum of the credit hours in a professional year;

(m)	**'Overall Grade Point Average (O.G.P.A.)'** means the quotient of the total credit points obtained by a student in all papers during the degree programme, divided by the total number of credit hours successfully completed;
(n)	**'Head of the Department'** means the academic staff member Principally responsible for teaching, research and extension education in the Department of the University;
(o)	**In-charge of the department'** means the academic staff member who is working as in-charge of the department and is responsible for teaching, research and extension activities of his/her department.
(p)	**'BASU Act 2016"** means the Bihar Animal Sciences University Act of 2016;
(q)	**'BV COUNCIL'** means The Bihar Veterinary Council, Patna
(r)	**'Professional Year'** means a period consisting of minimum two hundred and ten instructional days, excluding the annual examination days except fourth professional year which consists of 315 instructional days excluding the annual examination days;
(s)	**'Paper'** means the group of unit(s)/ unit (if only single unit is involved) listed under a subject title in a particular professional year;
(t)	**'Qualifying Examinations'** means Higher Secondary (10+2) or equivalent examination conducted by State or Central Board of Education;
(u)	**'Department'** means a unit of teaching and/or research and/or extension education of the Veterinary college/institute/ center.
(v)	**'Statute'** means the statute made under the Bihar Animal Sciences University Act of 2016.
(w)	**'Student'** means a candidate who is enrolled in Bihar Veterinary College recognized by the University and VCI for receiving instructions for qualifying himself for B.V.Sc. & A.H. degree certificate or other academic distinction conferred by the University.
(x)	**'Syllabus'** and **'curriculum'** means the syllabus and curriculum for courses of study as specified by the Veterinary Council of India;
(y)	**'Teaching Experience'** means the experience of teaching in the subject concerned in a recognized veterinary college or provisionally recognized veterinary college or recognized veterinary university after obtaining post graduate qualification in the concerned subject;
(z)	**'University'** means Bihar Animal Sciences University (BASU), Patna.
(aa)	**'VCI'** means Veterinary Council of India, New Delhi;
(ab)	**'VCI Regulations'** means Veterinary Council of India - Minimum Standards of Veterinary Education - Degree Course (B.V.Sc. & A.H.) - Regulations 2016;

(ac)	**'Veterinary Hospital or Institution'** means the Veterinary Clinical Complex of the College or Veterinary hospital of State Government or private hospital recognized 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;
(ad)	**"Visitor"** means a Visitor appointed under sub-section (1) of section 20 of the VCI Act;
(ae)	**"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;
(af)	Words and expressions used in the Bihar Animal Sciences University Act of 2016; VCI Act 1984; Bihar Animal Sciences University statute and Veterinary Council of India (Minimum Standards of Veterinary Education) Degree course (B.V.Sc. &A.H.) Regulations, 2016 and not defined in this Regulation shall have the meaning assigned to them in the Act, Statutes and VCI regulations as the case may be.

	PART -II: COURSE OF STUDY
3.	**Degree Course**
3.1	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 MSVE - 2016 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.
3.2	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**
4.1	First professional year of Bachelor of Veterinary Science and Animal Husbandry classes shall commence latest by September month of every year except under some extraordinary circumstances.
4.2	The annual examination shall be conducted prior to summer vacation for the year.
4.3	Each professional year (I, II & III) shall cover at least two hundred ten days of instruction excluding time spent for annual examinations. Fourth professional year shall consist of 315 instructional days excluding time spent for annual examinations. The Internship programme shall cover 12 calendar months.
5.	**Procedure to be adopted for training in the veterinary hospitals or institutions and livestock farm complex**
5.1	The Veterinary Clinical Complex shall be a separate unit in every veterinary college under the independent charge of a Faculty Member of the rank of a Professor with specialization in any of the clinical subjects and shall operate round the clock
5.2	Veterinary Clinical Complex should have an average of 500 outdoor cases and 10 indoor cases in a month.
5.3	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 Professor with specialization in any of the clinical subjects and shall operate round the clock. It shall have all 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, health verification tests, prophylaxis etc.
5.4	In case the Veterinary Clinical Complex does not have requisite number of out-patient and in-patient cases as prescribed in (5.2), the University/College shall set up outreach facilities not beyond 20 km radius of the College to fulfill the above minimum requirements. Such outreach clinical facility should have the entire infrastructure prescribed for a Veterinary Clinical Complex. The attached veterinary hospitals should have properly built in-door wards, client accommodation, emergency service and the necessary facilities to conduct and demonstrate/train all medical, surgical and gynaecological cases and separate "in Health" care facilities like artificial insemination, pregnancy diagnosis, health verification tests, prophylaxis etc.
5.5	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, health verification tests, prophylaxis etc.
5.6	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.
5.7	All the concerned staff on duty in the Veterinary Clinical Complex or veterinary hospital or both shall be responsible for the treatment and allied public services and shall invariably attend the clinics including emergencies or night duties and on Sundays or any holidays and the staff as well as students shall be properly attired {Apron, Coverall (dangree), etc} and equipped for the performance of clinical duties.
5.8	The teaching institutions shall maximally utilize the animal or patient information observing all the time the principles of animal welfare and ethics, and arrange the following 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 death or euthanasia detailed necropsy be demonstrated and specimens preserved; (v) maintenance of clinical data registers
5.9	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;
5.10	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
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	PART -III: ADMISSION TO 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) The candidates must 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) Minimum qualification required for admission in B.V.Sc. & A.H. degree programme shall be Intermediate in Science i.e. 10+2 or equivalent examination with Physics, Chemistry, Biology/Biotechnology and English (as a core course).
7.	**Selection of Students**
7.1	The selection of students for admission to Bachelor of Veterinary Science and Animal Husbandry Degree Course in the university shall only be on the basis of merit in Entrance Test conducted by NEET (NTA), thereafter, counselling conducted by BCECE, Patna and Students selected through All India Quota (VCI).
7.2	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.
7.3	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/Biotechnology, and obtain 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.
7.4	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 the students belonging to the Scheduled Castes and Scheduled Tribes obtaining not less than the minimum prescribed pass percentage.
7.5	The students who are educated abroad seeking admission in veterinary colleges in India should have passed the subjects of Physics, Chemistry, Biology and English up to the 12th Standard level or equivalent with 50%

	marks in aggregate of these subjects.
7.6	Sponsored candidates shall have to qualify the admission procedures as laid down for the students under general category.
7.7	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 and/ or ICAR.
7.8a	85% of the total number of seats will be filled from the candidates who are Bihar domicile based on the entrance examination conducted by NEET, thereafter counselling conducted by BCECE, Patna
7.8b	15% of the total number of seats of each veterinary college shall be reserved and filled in on an all India basis through the Common Entrance Examination conducted by the Veterinary Council of India or any other agency approved by the Govt. of India or VCI 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.
7.9	The candidates selected on VCI seats 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.
7.10	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 from disabilities mentioned in VCI gazette time to time.
7.11	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.
7.12	After the final admissions, Veterinary college shall submit the details of the students admitted in the first professional year of B.V.Sc. and A.H. programme and similarly the list of students who pass out shall also be submitted to the Veterinary Council of India.
8.	**Enrollment, Registration and Continuance**
8.1	The dates of registration, commencement of instruction/classes, Annual examination of professional year shall be determined by the Dean of the College of University from time to time and notified accordingly.
8.2	Fees levied on account of enrollment, tuition, hostel, students' council, examination and other items shall be such as determined by the University from time to time.

8.3	Students selected provisionally for admission to B. V. Sc. & A. H. degree course shall report to the Dean of the respective college before the last date notified for this purpose by the Registrar of the University.
8.4	Advisement: (a) The student, freshly admitted to BVSc and AH (as well as the continuing students) shall present themselves in the beginning of each professional year on the dates notified by the Dean for advisement. (b) Fresh students shall be assigned by Dean of the college in group of upto eight students to faculty members who act as their advisors. (c) Each advisor shall help the undergraduate student in planning their programme of study. Each advisor shall maintain a close contact with the advisee (student) as well as his/her parents and shall keep the parents informed of their wards progress. Problems, if any, requiring special measures shall be brought to the notice of the Dean, immediately. (d) The registration is a part of admission process for fresh students. If any student fails to get registered on the date notified, the admission shall be summarily canceled.
8.5	Registration shall consist of: (a) The student must remain present himself/herself for the registration and *in absentia* registration will not be permitted in any case (Except emergency condition). (b) Filling up of registration forms in online mode indicating the subjects/ courses offered during the year duly signed by the student, his/her advisor and course teachers. (c) Payment of University/ College/ Hostel fees and electricity bill, if any, and other fees/ charges by the student to the University account in online mode. (d) Online submission of Registration Forms in the Office of the Dean. (e) The Dean may refuse / cancel registration of the student who has indulged in any act of indiscipline or gross misconduct. The registration may also be cancelled by Vice Chancellor, if allowed by mistake/any other reason, on the recommendation of Dean/DSW/Registrar. Such students have to immediately vacate the hostel and leave the campus. (e) Special provision for fresh students: Medical examination shall be compulsory for all the students admitted during the first year and the same should be got done from the Civil Surgeon/Medical Officer/Registered Medical Practitioner as directed by the University / Dean on the date of counseling. If a student is medically unfit, the admission shall be denied by the admission committee. (f) At any time during the course of the degree programme, the student may be directed to get himself/herself medically examined by the competent authority(s) as & when it may deem fit.
9a.	**Late Registration:** (i) A student seeking admission to professional year other than the first shall be permitted for late registration by the Dean on payment of a late fee of Rs.

	100.00 or as approved by Academic Council per day up to a period of seven (7) working days excluding the day notified for registration. Late admission/registration after seven (7) working days shall be permitted only by the Vice-Chancellor on payment of late fine @ Rs.50/- per day up to the maximum of 15 working days from the date of first admission. (ii) No registration shall be permitted on the expiry of this period on any ground. After the last day of registration (including the period specified for late registration), the student shall not be permitted to register for that professional year. Within two months from the last date of registration, he/she shall have to obtain written permission from Dean for allowing him/ her to register for the respective professional year during the next academic session, whenever due, provided he / she has paid the fees of the professional year in which he / she did not register. If he / she fails to do so, his/her name shall be removed from the University roll and his/her admission shall stand cancelled. A candidate may be allowed provisional registration to the next professional year, if he/she has failed in maximum of two papers. He/she cannot be promoted to the next B. V. Sc. & A.H. class unless he/she clears the subjects in the ensuing compartment examination.
9b.	**AGREEMENT BOND (FOR B.V.Sc & A.H):** Candidate selected for admission in B.V.Sc. & A.H. course will have to execute an agreement bond duly signed by his/her parent/ guardian at the time of admission on the prescribed format. Failure to execute the Agreement bond will lead to cancellation of admission. A student who desires to leave the degree programme midway after closure of B.V.Sc. & A.H. admission due to on any reason including shortage of attendance before completion of B.V.Sc. & A.H. programme, shall have to pay a sum of Rs. 300000/- (Rupees three lakhs) along with refund of total drawn amount of stipend from college as penalty to get College Leaving Certificate and the Migration Certificate.
10.	**Award of Degree and the residential requirement** For the award of degree of BVSc and AH, the minimum and maximum residential permissible time limit shall be as under

	Minimum	**Maximum**
BVSc and AH (including 1 year rotatory internship)	**5½ years**	**09 Years**

Any year washed out on account of withdrawal/dropping by the student of his own due to any reason/failure to register in time/ medical grounds/use of unfair means/ dropped for any reason whatsoever described above shall be counted towards the maximum permissible limit of 09 years.

11.	**Re-Admission of the Student:** A student whose professional year has been washed out for any reason whatsoever as described above shall be able to resume his/her studies in the subsequent academic year or maximum within 2 years of leaving the college and he/she shall be treated as continuing student for all purposes

	provided: (a). He/She has completed a minimum requirement of one professional year (b). The total period of withdrawal shall not exceed 2 consecutive years including the year in which he/she had withdrawn. (c). He / She has obtained permission from the Dean as above in 9(ii). (d). Students seeking re-admission in first professional of BVSc and AH shall be governed by the newer academic regulations, if any. (e). Fees of the gap period is paid by the student at the time of registration. (f). Such permission and readmission shall be granted only once during the degree programme. (g). The student shall have to complete his/her studies within 09 academic years (including Internship) from the date of his/ her first admission.
12.	**Migration or Transfer of Student:** (1) Student studying in the constituent veterinary college of this University may be allowed to migrate or be transferred to another veterinary college within University or other University. (2) The migration or transfer will be allowed after passing 1st professional year of Bachelor of Veterinary Science and Animal Husbandry degree course within one month of the start of academic session of 2nd professional year. (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 college in one year. (4) The cases not covered under sub regulations, (1) to (3) will 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.
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	PART -IV: VETERINARY CURRICULUM – STRUCTURING AND ORGANIZATION OF COURSE CURRICULUM
13.	**Veterinary Curriculum:** The following shall be the veterinary curriculum, namely:- (a) (i) Core Courses; and (ii) Internship including Entrepreneurial 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 English; (d) practical training at Livestock Farm Complex or Clinical practice shall be organised in small groups of 5 to 10 students so that 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 twenty 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.
14.	**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.

15.	**Courses, credits, curriculum system of teaching and evaluation:** (1) The details of the courses, credits and curricula of the degree courses, shall be as per VCI Regulations 2016. (2) Students admitted to the degree course will be taught and evaluated through the course-credit system as prescribed by Veterinary Council of India.
16.	**Counseling System:** (1) The students, on their admission, shall be grouped into convenient batches by the Dean of the College and each such batch of students shall be assigned to an advisor who shall be an academic staff member of that college. (2) Advisor will establish and foster close relationship with the students assigned to him/her by having periodical meetings (either with the entire batch of students or with each student separately as often as may be necessary) and shall endeavor to know their problems and find solutions thereof and review their academic progress. The advisor shall conduct monthly meetings to review the overall performance of the students allotted to him and submit the report to Dean of the college and inform his/her parents, if necessary. (3) The advisor shall facilitate overall development of the student and shall also advise him/ her in personal difficulties.
17.	**Syllabus (VCI – MSVE, 2016):** (1) The details of syllabus comprising of 81 credits 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**

(2) In addition to the Core Courses, a student shall have to successfully complete the Internship including Entrepreneurial Training for the award of Bachelor of Veterinary Science and Animal Husbandry degree.

(3) Remount Veterinary Squadron or National Cadet Corp or Equestrian or National Service Scheme or Sports and games shall be non- credit (0+1) training programmes. Registration and satisfactory completion of any of these programmes during all the Professional Years (except fourth) shall be compulsory for the award of Bachelor of Veterinary Science and Animal Husbandry degree. 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.
18.	**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 shall 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 non-credit training programme (Remount Veterinary Squadron or National Cadet Crop or Equestrian or National Social Service or Sports and games) as applicable under these regulations. (4) The Dean shall issue a provisional course completion certificate of having passed all the professional examinations and having successfully completed prescribed course work. (5) The Bihar Veterinary Council (BV 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 BV 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 wherever possible and paid consolidated remuneration in the form of internship allowance as may be decided by the University from time to time. (10) The intern shall be entitled for fifteen days casual leave however; the leave cannot be claimed as a matter of right until and unless the sanctioning authority sanctions it. If an intern willfully absents from the training programme even for a 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 of the college as Chairperson or his/her representative or nominee of Vice Chancellor, Incharge of Veterinary Clinical Complex, Incharge of Livestock Farm Complex as members and Internship Coordinator (Associate Professor, Internship) as Member Secretary. The Committee shall monitor and ensure effective implementation of the internship training programme from time to time. The committee shall visit the internship centres and inspect the programme at different intervals of time randomly.

(12) In case of unsatisfactory performance or shortage of attendance or both, the period of compulsory rotating internship shall be extended by two months and the student shall be re-evaluated, if again found unsatisfactory or is unable to secure 50 marks, he/she shall be given one more chance and his internship shall be extended further by two months and if his/her performance is still 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 BV 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 at Veterinary Clinical Complex for Clinical training covering veterinary medicine, surgery and radiology, gynaecology and obstetrics, clinical emergencies, indoor ward care, laboratory diagnosis, ambulatory clinic, 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 wherever possible;

(iii) posting in any four of Zoo or wild life centre or National 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;

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;

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 waive off in case it is found that the loss has been found inadvertent;

(v) the In-charge 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;

(vi) the remaining days shall be utilized 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 cast or splint 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 shall be worked out by the Veterinary Institution as per its needs and infrastructure facilities and the activities of interns shall be regulated by Internship Coordinator (Associate Professor, Internship) posted in Veterinary Clinical Complex and Entrepreneurship Coordinator (Assistant Professor, Internship and Entrepreneurship) posted in 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 will be 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 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 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.

19. 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 (separately), 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 as well as internal examinations.

(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:

Assessment	Course coverage	Marks	Weightage
First Internal Second Internal Third Internal	30% 31% -60% 61 % -90%	Max. Marks 40 Max. Marks 40 Max. Marks 40	Weightage 10 Weightage 10 Weightage 10
Annual examination (Theory-External)	Paper-I Paper-II	Max. Marks 100 Max. Marks 100	Weightage 20 Weightage 20

Annual examination (Practical-External)	Paper-I Paper-II	Max. Marks 60 Max. Marks 60	Weightage 20 Weightage 20

(7) There shall be four professional examinations- one each after first, second, third year and the fourth after one and half year (i.e. after completion of a total of four and half years). These professional examinations shall have both the theory and practical components with external system.

(8) Annual professional examinations shall be held after the completion of 100 % course content in each subject.

(9) Out of the three internal assessments carried out, the result of best two shall be considered for computing the final result of the subject / paper.

(10) 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.

(11) 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).

(12) The annual/final practical examinations shall be conducted by a Board of Examiners consisting of an external examiner appointed by the Controller of Examinations, concerned Head of the Department, teacher(s) and a representative of the Dean while evaluating practical, shall take into account the followings, namely:-

(i) a record or log book maintained by each student as practical records; The record/log book shall not constitute more than 10% of the criterion.

(ii) Written test

(iii) 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). The viva-voce shall not constitute more than 20% of evaluation criterion.

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

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

(15) The duration of internal assessment shall be at least one hour whereas the duration of annual theory examination shall be three hours. The marks of the internal assessment shall be submitted to Controller of Examinations within one week of conduct of examination. The CoE will compile and prepare the score of the student in internal examinations, one month prior to the commencement of annual examinations out of the best of two internal assessment marks submitted by the instructor through the Head to the Controller of Examinations.

(16) 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 papers, each for main examination and compartment examination (if any).

	(17) The internal assessment shall be conducted by the concerned instructor(s) during evening/ morning hours (Before first class of the day or after the last class of the day) without affecting the teaching schedule provided. The schedule for the same may be notified by the CoE and the concerned HoD/Incharge will be responsible for seating of the students, maintenance of invigilation and sanctity of examination. 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. (18) 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. (19) The compartment examination shall be conducted within twenty working 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). (20) 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.
20.	**Teachers, Examiners, Paper Setters:** As per VCI – MSVE, 2016 (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 B.V.Sc. and A.H. or M.V.Sc. 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. 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 Degree 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 recognized veterinary qualification and holds a postgraduate degree and teaching experience in the subject concerned. (d) persons working in Government or Semi Government or similar organizations 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.
21.	**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 (including compartmental) 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. The attendance for the First year shall be counted from the date of registration of the student.
22.	**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 be awarded 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 9 academic years (excluding Internship) in a Veterinary College.
23.	**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 percent 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.
24.	**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 within three days after the declaration of result and after paying prescribed fee. (3) The Controller of 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 20% 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.
25.	**Grading:** (1) Grade Point of a subject shall be the total marks obtained by a student out of 100 divided by 10 (2) Credit Point of 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
26.	**Unfair Means:** (1) The Dean of the college shall have the primary responsibility of preventing and dealing with the cases of preparation, attempt,

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abetment and use of unfair means in all the examinations (theory and practical/ Internal / Annual Board, Compartment and Internal).

(2)The concerned teacher or invigilator who during the course of examination notices or to whose notice it has been brought that student is preparing, attempting, abetting in use of or is actually using or has used unfair means in any of the examinations, shall seize all the incriminating material, including answer book from the student and shall issue fresh answer book to the student asking him to solve the remaining question(s) within the rest of the examination period.

(3) The teacher or invigilator concerned shall on the very day of the alleged preparation for or attempt of abetment in use or actual use of unfair means by a student in an examination report to the Dean, through In-charge of Examination (In case of internal examination, HoD/Incharge of the department). The occurrence of the said alleged preparation, attempt, and abetment should be reported with records (including both the answer books) and evidence in support to the same. If the student refuses to give his/her statement, he/she be asked to record in writing his/her refusal to give a statement. If he/she refuses to do so, the fact shall be noted duly witnessed by at least one member engaged in invigilation. The invigilator shall however, write his/her remarks on the answer book & affix his/her signature.

(4) On receipt of the report referred to in clause [26(3)] above, the Dean of the college shall himself hold enquiry into the alleged preparation, attempt, abetment or actual use of unfair means in the examination within three days. The concerned student shall be given an opportunity to be heard by the Dean. If student fails to appear for enquiry, ex-parte decision will be binding on student. Pending the said enquiry, the student shall be permitted to appear at the remaining part of the examination, but his result shall not be declared till a final decision in the said case is taken by the Dean of the college.

(5) On the completion of the enquiry referred to in clause [26(4)] above, if the Dean of the college holds that the student is not guilty of the charge of preparation, attempt, abetment or the actual use of unfair means, he shall direct to evaluate both the answer books and the result be declared accordingly.

(6) If the Dean of the college holds that the student is guilty of the charge of preparation, attempt, abetment or actual use of unfair means, he/she shall award punishment to such student as per details given below:

Sr. No.	Examination	Punishment

	1	Internal Assessment (theory or practical)	The student shall be given zero (0) mark in all the subjects of that particular assessment. He/she shall be eligible to appear in Annual Board examination of the respective paper of subject.
	2	Annual Examination (theory or practical)	The student shall be declared to have failed in the concerned paper of the subject. He/she will not be eligible to appear in the compartment examination of ensuing session and hence declared fail in that class.
	3	Compartment examination (theory or practical)	The student shall be declared to have failed in the concerned paper of subject & reverted to the class from where he/she was conditionally allowed promotion.

(7) Occurrence of any other incident and use of unfair means not covered above shall be dealt with by the Dean of the college as per the 'Maintenance of Discipline & Good Conduct by Students Rules of the University.

(8) The Dean of the college shall report to the Controller of Examination/Registrar each such case of unfair means immediately by an order in writing and order shall be binding on the student and all other concerned.

27. **Students Responsibilities:**

Every student undergoing instruction, in the course leading to the award of the Bachelor's Degree is expected to know the general academic requirements to qualify himself/herself for the award of the said degree and he / she is further expected to assume full responsibility for complying with the same. He/ she is also expected to keep constantly in touch with his/her Counselor/advisor and course teacher so that the former may watch his/her progress and guide him/her accordingly. In no case requirements of these Regulations be waived or exception made simply because a student pleads ignorance of the same.

28. **Maintenance of the discipline among the student of College**

The hostel discipline related to students will be followed as per Bihar Animal Sciences University Guidelines

29. **Saving:**

Any changes or modifications in this Regulation made from time to time by the appropriate authorities would be effective from the date as may be decided by the Bihar Animal Sciences University, Patna Competent authority to all the students who are on roll on that date and on subsequent date. Similarly, in the event of any difficulty arising at any time in the implementation and interpretation thereof, the decision of the Hon'ble Vice-Chancellor of the University, shall be final and binding on all concerned.

PART V		
COURSES AND COURSE CONTENTS		
30	**Professional Year wise Distribution of Courses**	
	(1) First Professional	
	Veterinary Anatomy	4+3=7
	Veterinary Physiology	4+1=5
	Livestock Production Management	4+2=6
	Total	12+6=18
	(2) Second Professional	
	Veterinary Biochemistry	2+1=3
	Veterinary Microbiology	3+2=5
	Veterinary Pathology	4+2=6
	Animal Genetics and Breeding	3+1=4
	Animal Nutrition	3+1=4
	Total	15+7=22
	(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
31.	**Course Contents**	
	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.	
	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 postmortem 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 paralysisshoulder 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

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

(ii) Department Of Veterinary Physiology And Biochemistry

VETERINARY PHYSIOLOGY AND BIOCHEMISTRY	Credit Hours: 6+2
(a) VETERINARY PHYSIOLOGY	Credit Hours: 4+1
(b) 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 constituentssecretion 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

THEORY	PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
	Paper-I	1, 2	100	20
	Paper-II	3,4	100	20
PRACTICAL	Paper-I	1, 2	60	20
	Paper-II	3,4	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, enzymesubstrate 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				
	THEORY	PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
		Paper-I	1, 3	100	20
		Paper-II	2	100	20
	PRACTICAL	Paper-I	1, 3	60	20
		Paper-II	2	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. Physical and biological features of habitats in India, Biogeographic zones, Biology of major groups of vertebrates, fish, amphibians, reptiles, birds and mammals. World zoo conservation strategy and national zoo policies. Zoo management, exhibit design and enrichment, Management and health of important faunal groups.
	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. Exportor import 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 Mithun or Yaks. 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				
	THEORY	PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
		Paper-I	1, 2, 3, 4, 5	100	20
		Paper-II	6,7,8,9	100	20
	PRACTICAL	Paper-I	1, 2, 3, 4	60	20
		Paper-II	5,6,7,8	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 TCID50 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				
	THEORY	PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
		Paper-I	1, 2, 3	100	20
		Paper-II	4,5	100	20
	PRACTICAL	Paper-I	1, 2, 3	60	20
		Paper-II	4, 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, hydropericardium 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). Importance of necropsy of wild animal in determining the disease risk to population. Preparing for necropsy-equipment, safety precautions, and preparation of sample containers. General considerations in checking infectious diseases and handling of decomposed carcasses. Tissue sampling procedures.
	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. Post mortem examination of wild animals. Study of gross specimen and histopathological slides of disease affecting wild animals.
Carcass dissection-carnivores, ungulates, reptiles and birds. Post-necropsy-disinfecting necropsy site, storage of samples and transport. Sample. Preservatives, tissue checklist for microbiology, toxicology and histopathology.

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

THEORY	PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
	Paper-I	1, 2, 3	100	20
	Paper-II	4,5, 6	100	20
PRACTICAL	Paper-I	1, 2, 3	60	20
	Paper-II	4, 5	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 captivity or zoo or natural habitats. Planned breeding of wild animals. Controlled breeding and assisted reproduction. Breeding for conservation of wild animals and birds in captivity. Conservation breeding programs: Principles and practices, Policy and guidelines governing CBP, Case studies of global and national successful CBP, Record keeping, Studbooks and genetic characterization of threatened species.
	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

THEORY	PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
	Paper-I	1, 2	100	20
	Paper-II	3	100	20
PRACTICAL	Paper-I	1, 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. General nutrient and energy requirement- protein, water, and fatty acids. Food composition, gastrointestinal anatomy and function of various groups of wild animals.				
	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				
	THEORY	PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
		Paper-I	1, 2	100	20
		Paper-II	3, 4	100	20
	PRACTICAL	Paper-I	1, 2	60	20
		Paper-II	3, 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 (LD50)or maximum tolerated dose (MTD).				
	ANNUAL EXAMINATION				
	THEORY	PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
		Paper-I	1, 2, 3 and 4	100	20
		Paper-II	5, 6	100	20
	PRACTICAL	Paper-I	1, 2	60	20
		Paper-II	3, 4 ,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. Emerging and re-emerging wildlife diseases, Major zoonotic diseases and wildlife reservoir. Drivers of Disease emergence (Biodiversity loss, human behaviour and potential risks in transmission of pathogens). Role of arthropod vectors in

	wildlife zoonoses. Disease risk analysis Human safety consideration while working in natural habitats.
	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

THEORY	PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
	Paper-I	1, 2	100	20
	Paper-II	3, 4	100	20
PRACTICAL	Paper-I	1, 2	60	20
	Paper-II	3, 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, Stilesia,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, Stomoxys, 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 immunoprophylaxis) 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

	THEORY	PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
		Paper-I	1, 2, 3	100	20
		Paper-II	4, 5	100	20
	PRACTICAL	Paper-I	1, 2, 3	60	20
		Paper-II	4, 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				
	THEORY	PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
		Paper-I	1, 2	100	20
		Paper-II	3, 4	100	20
	PRACTICAL	Paper-I	1, 2	60	20
		Paper-II	3, 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. Teachinglearning 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, breakeven- analysis etc.
	UNIT-8 (INFORMATION AND COMMUNICATION TECHNOLOGY)
	Strengths and limitations of ICTs application in livestock sector and farmers capacity building. Information kiosk, Elearning, 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 audiovisual 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				
	THEORY	PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
		Paper-I	1, 2, 3, 4, 5	100	20
		Paper-II	6, 7, 8, 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 reticuloperitonitis, 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) Lab diagnosis (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, intraoperative and post-operative considerations: History taking, physical examination, clinico-pathological testing, intraoperative 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 Xrays. 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				
	THEORY	PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
		Paper-I	1, 2, 3, 4	100	20
		Paper-II	5, 6	100	20
	PRACTICAL	Paper-I	1, 2, 3, 4	60	20
		Paper-II	5, 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. Understanding species biology for safe handling of wild animals. Applied physiology of nervous system, cardio vascular and respiratory system. Basic pharmacology and mechanism of drug action, basic immobilization principles. Remote injection systems. Post immobilization emergencies and their management, Pathophysiology of stress and its management, Case studies of rescue and rehabilitation of wild animals in distress, Safety and accidental human exposure and medical management.
	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 Zoo or Sanctuary. Examination of veterolegal cases.
	UNIT-4 (BACTERIAL, FUNGAL AND RICKETTSIAL DISEASES)
	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

THEORY	PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
	Paper-I	1, 2, 3, 4	100	20
	Paper-II	5, 6, 7	100	20
PRACTICAL	Paper-I	1, 2, 3	60	20
	Paper-II	4, 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 animalsImplantation, 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. Assisted Reproductive technologies, Cryo banking Ex –situ Conervation-Objectives and principles
	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 vaginoscopyUltrasonography 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 parturitionApproach 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 scrotumPlanning 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 semenPreservation of semen-Thawing of semen and technique of AI-Handling and maintenance of LN2 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				
	THEORY	PAPERS	UNITS	MAXIMUM MARKS	WEIGHTAGE
		Paper-I	1	100	20
		Paper-II	2, 3	100	20
	PRACTICAL	Paper-I	1	60	20
		Paper-II	2, 3	60	20
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PART -VI: ISSUE OF DOCUMENTS TO THE STUDENTS

32 **Issue of Transcript**

After publication of final result of particular Degree Programme the successful candidates shall be issued Transcript containing details of academic attainment of the student year-wise along with final OGPA and class of division as required on payment of prescribed fee under the signature of the Registrar. Such Transcripts shall be issued on specific recommendation of the Dean of the College who in turn recommend for the issue of such certificates after being satisfied that there is nothing due against the student and he/she has vacated the hostel.

33. **Issue of Provisional Degree Certificate**

A Provisional Degree Certificate in the form prescribed shall also be issued to the student on payment of prescribed fee under the signature of the Registrar. This certificate shall also be issued on a specific recommendation of the Dean in the manner as prescribed above.

34. **Issue of Original Degree Certificate**

The candidates so declared successful for the award of a particular Degree and approved by the Academic Council shall be admitted to the said degree and issued the Degree Certificate in an Annual Convocation organized by the University each year. Such Original Degree Certificate shall be both in Hindi and English on the same format as prescribed and will be signed jointly by the Registrar and the Vice-Chancellor.

Annual Convocation shall be held as and when possible as per procedure prescribed in the Regulations.

Date of publication of result shall be the date of award of degree.

35. **Issue of Character Certificate**

A character certificate shall also be issued to the student under the signature of the Dean of the college. This certificate shall also be issued on a specific recommendation of the Chairman/HoD.

36. **Fee Chargeable for various Certificates**

The following fee shall be charged for issue of Provisional Degree Certificate, Transcript and other documents to the students.

S. No.	Item	B.V.Sc. & A.H. (Rs.)
1.	Provisional Degree Certificate	300
2.	Transcript	300
3.	Original Degree Certificate including convocation charge	1000
4.	Immigration fee	1000
5.	Any other Certificate issued under the	300

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	seal and signature of the Registrar	

Duplicate of the above certificate

S. No.	Item	B.V.Sc.& A.H. (Rs.)
1.	Provisional Degree Certificate	500
2.	Transcript	500
3.	Migration Certificate	800
4.	Degree Certificate	1500

Above documents shall be given to the students by hand or can be sent by Registered Post. However, in case of urgency, the same may also be given to the person authorised by the candidate.

	PART -VII: Hostel Rules and Regulation
37	**Hostel Rules and Regulation**
37.1	**Residence of the enrolled Students** 37.1.1 The Bihar Animal Sciences University, Patna shall be a residential University. 37.1.2 Every student of the University shall reside in a Hostel of the University or in such other accommodation required and managed by the University. 37.1.3 Separate boys and girls hostel will be made available to accommodate the students. Residence in the hostel subject to availability of accommodation will be compulsory for all regular students of the University. However, hostel accommodation cannot be claimed as a matter of right. 37.1.4 Student may be allowed by the concerned Dean to stay outside the hostel with his/her parent/guardian under special circumstances and on a specific written request of the parent/guardian provided the place is within a reasonable distance from the college where the student is residing.
37.2	**Accommodation** 37.2.1 The right of admission and residence in the hostel is reserved. A student may be refused accommodation or deprived of accommodation already provided with, any time by the hostel authorities, without assigning any reason thereof. 37.2.2 At the time of admission/registration, all students who wish to reside in the University hostels shall apply in the prescribed form, to the Chief Warden/Director Students Welfare, for admission to a hostel. 37.2.3 The admission and allotment of rooms in the hostel shall be on the basis of merit& seniority subject to availability of rooms. 37.2.4 Students must be personally present at the time of allotment of rooms. Rooms to be specified immediately before the allotment is made. 37.2.5 The student has to produce the receipt of the hostel fee in each semester to the Hostel Warden, failing which the accommodation will not be provided. 37.2.6 Every student will be provided with a cot, table, chair etc. (which he/she shall receive) and other fittings. He/she shall be responsible for safety of furniture and electric fittings provided to him/ her. 37.2.7 No item of furniture is to be removed from one room to the other without prior permission and authorisation of hostel authorities. 37.2.8 On allotment and before occupying the room or at the time of change of room, each student should get the furniture and electric fittings checked and should hand over all the furniture of his/her room to the hostel authorities, while changing/ leaving the room. 37.2.9 Hostel accommodation once allotted cannot be changed except in very special circumstances with the concurrence of the hostel authorities. No student can change his/her room without the permission of hostel authorities. 37.2.10 No cooking, ironing, use of electric heater or lighting fire, air condition, personal television, immersion rod, room geysers are not permitted in hostel rooms. Defaulters shall be fined Rs.500/- and the appliances will be confiscated and treated as breach of hostel rules. 37.2.11 While finally vacating the hostel, each student shall have to handover the charge of the room and other articles issued to him/her and obtain a No Dues' certificate to that effect from the hostel authorities.
37.3	**Reservation of the Right of Admission** Hostel shall be treated as a facility provided by the University for the Convenience of the student registered in the University in accordance with the Statutes and Regulations, and the right of admission and continuance is reserved by the University. Any person may be refused accommodation or deprived of accommodation already provided at any time by the Chief Warden with the permission of DSW/Dean& Vice-Chancellor without assigning any reason.

37.4	**Inspection of Rooms** The rooms can be inspected by the Warden and other officers of the University at any time, and any student obstructing such inspection and refusing the same shall be liable to disciplinary action and punishment thereof.
37.5	**Students' Guest** i. No students' guest are permitted to stay in the hostel room occupied by him/her. ii. Under no circumstances ladies/female guests can be permitted or entertained in the individual rooms of the boy's hostel and male guests in the girl's hostel. iii. Ladies guest will not ordinarily be allowed to enter for dinning of boy's hostels without prior permission from the Warden. iv. Students' family, guests and friends can get accommodation in the Guest house with prior permission of his/her Warden concerned.
37.6	**Identity Cards** All students admitted to the University shall have their Identity Cards. Students shall always carry the Identity cards with them and shall produce them whenever demanded by any officer of the University or any faculty member of the university.
37.7	**General Regulations** 37.7.1 Every boarder must have with him a copy of the rules; he/she must familiarize himself/herself with these rules and must follow/abide by the same. Ignorance of the rules will not be considered as an excuse. 37.7.2 In granting character certificates to the boarders, the opinion of the Warden of college hostel will be given weightage. 37.7.3 The Warden/ DSW will exercise general supervision and control over the hostels through the Warden of the respective hostel. 37.7.4 Notices for the guidance of students shall be displayed on the hostel notice boards. Students are advised, in their own interest, to read the notices regularly, ignorance of regulations and instructions shall not be an excuse for non-compliance. 37.7.5 No boarder should see the Dean/Registrar/Vice-chancellor for ordinary affairs. Hostel prefects or warden of the respective hostel or chief wardens are the right persons to be approached for such matter. 37.7.6 All cases of illness must be reported immediately to the hostel Prefect or Caretaker/ Warden of the respective hostel and to the University Medical Officer. In case of serious illness, the Chief Hostel Warden/DSW/Dean must be informed and also information must be given to the parents/ guardian at the earliest. 37.7.7 No student shall keep any fire-arms, lethal weapons, poison of any kind in the hostel. 37.7.8 Keeping of smacks, brown sugar, alcoholic drinks or any other intoxicating items in the hostel rooms is not permissible. Students found in possession of the same shall entail expulsion of the student from hostel or college including legal prosecution. 37.7.9 Any meeting to be held in hostel premises will need to have prior approval of the Chief Warden/DSW/Dean concerned. 37.7.10 The students shall make proper use of common-room, the newspaper and journals and the articles used for all indoor games. Timings for the common-room will be fixed by the Hostel Warden in consultation with hostel prefect from time to time. The Common Room Secretary will be responsible for running the common room properly. 37.7.11 While visiting the dining hall, common room and canteen, students must be properly dressed. 37.7.12 In each wing of the hostel, a senior student of good standing Academic record shall be appointed as a Hostel Prefect wing councillor for the wing, who will assist the Hostel Warden in the administration of hostel affairs. Wing councillor will be decided on merit basis & he/she

	shall avail the facility of fee waiver for the said period in the hostel. 37.7.13 Purchase of newspaper, magazine, indoor game items, registers, rubber stamp and mementoes etc. for hostel competitions will be made as per requirement of the students in consultation with Hostel Warden/ Chief Hostel Warden as approved by the DSW. 37.7.14 Expenditure on purchase of T.V. and its service provider, hostel furniture, utensils, hostel functions and festivals or any other miscellaneous items can be made to which the Chief Warden/DSW may deem fit to incur in consultation with the secretary of the common room of concerned hostels. 37.7.15 The Director Students Welfare/Dean concerned, on the advice of a committee appointed by him, will be competent to declare an article purchased out of the hostel fund, as unserviceable and authorize its write off and/ or auction. 37.7.16 Amendment to these rules can be made by committee consisting of the Chief Warden/DSW, Hostel Warden, subject to the approval of the competent authority. 37.7.17 All the boarders shall vacate the hostel rooms before they leave for the summer vacation/ Annual break/or on orders from the hostel authorities. 37.7.18 Students will have to use their own locks and bulbs for the rooms allotted to them. Replacement of bulbs/tube lights in the hostel room during the period of stay by a hosteller will be the responsibility of the hosteller himself/herself. 37.7.19 No article of common use such as magazine, newspapers, gymnasium items, dining utensils, etc. may be taken to the rooms by the residents of the hostels. 37.7.20 Fans and light in the rooms must be switched off before leaving the rooms to economize the electric consumption. 37.7.21 Students are not supposed to tamper with electrical installations. Any tampering with electrical installations, switch board, etc. shall be considered as violation of hostel rules and strict action may be taken against him/her. 37.7.22 The inmates of the hostel shall use the lavatories, bathrooms, wash basins, urinals, etc., properly/hygienically and cause no damage to various fixtures. 37.7.23 No resident is to insult/injure or appear to cause insult/injury to the feelings and sentiments of other inmates. 37.7.24 Residents are not to organise themselves into groups or give cause to even appear to have done so, on the basis of caste, colour, religion, and class consideration or on the basis of social or political philosophy. Violation may lead to expulsion from the hostel and matter may be referred to disciplinary committee of college/university. 37.7.25 Hostellers are advised not to keep costly jewellery, gold, cash, etc. in their rooms. They themselves will be responsible for the safety of their personal belongings. 37.7.26 Playing games on lawns/grounds other than those specified area for the purposes is strictly prohibited. 37.7.27 It is compulsory for all the students to obtain identity cards from the university and they should carry the identity cards with them to produce as and when required. 37.7.28 No cultural or social functions can be organised in the hostel premises without prior permission of hostel authorities. 37.7.29 No dogs or pets are permitted to be kept in the rooms. 4.7.30 The hostel authorities shall not be responsible for any debts or dues to hostel messes, canteens and outside shops incurred by the students.
37.8	**Electricity /Gadgets** 37.8.1 Lights must be switched off when not in use. The students are advised to use LED/CFL lights to save electricity. 37.8.2 The use of electric heaters, electric rod, kettles and other appliances is prohibited. Un-authorised use is punishable by confiscating the appliance/gadgets, and/or a fine. 37.8.3 Tempering with the electric installations shall be treated as a serious offence. When there is need for carrying out a repair, the electrician of the University should be called in.
37.9	**Furniture and Equipment** 37.9.1 Students shall keep their rooms neat and tidy and shall be responsible, jointly and individually, for the furniture issued to them and for the fittings present in their rooms as received at the time of occupation. If a student observes any damage or defect in the furniture

	issued to him/her or in the permanent fittings in his/her room or finds anything missing at the time he/she occupies the room, it shall be his/her duty to bring it to the notice of the Hostel Warden failing which it will be presumed that everything was in order at the time of occupation. 37.9.2 Furniture shall not be removed from one room to another. The furniture belonging to the Common Room or the Dining Hall or the hostel office or the Hostel Guest Room shall not be taken out or brought into the living rooms. 37.9.3 When the student vacates his/her room before the summer break/Semester or annual break or after withdrawal or expulsion or at the time of living, he/she shall return all furniture and other article issued to him/her to the Hostel Clerk/Caretaker, failing which he/she shall not be issued NOC &shall be liable to pay the entire cost of such furniture or other property.
37.10	**Maintenance of Lawns and Cleanliness** 37.10.1 The lawns around the hostel are meant for the benefit of the students and for improving the appearance of the hostels. Students are expected to help and to take interest in their maintenance. 37.10.2 Students shall avoid crossing the lawns and shall use only the passages that are provided. Hedges shall not be tempered with nor flowers be plucked. 37.10.3 Cycling in the lawns and verandas is strictly prohibited. 37.10.4 Spitting, except at places meant for such purposes is strictly prohibited. 37.10.5Boarders should dispose the waste/Plastics only at the designated places/waste bins. 37.10.6 Boarders are expected to show a sense of responsibility to keep their rooms and surroundings neat and clean and make proper use of dustbins. 37.10.7 Spitting in hostel compound, corridors, rooms, cycling in lawns, veranda, corridor, roof, plucking of flowers, crossing of flowerbeds and lawns are prohibited. 37.10.8 Residents are not to scribe anything on the walls and doors of hostel rooms and toilets. Sticking of posters and distribution of unauthorized bills/pamphlets/posters/ notices by the residents are not permitted. 37.10.9 Wash basin should not be blocked with any extraneous material. It should be kept clean and should only be used for washing purposes. To avoid blockage, please do not throw datun, papers, etc. in it. 37.10.10 For proper functioning of the sanitary lavatories following instructions must be followed. Flush the toilets. The cistern will work satisfactorily only when full. Once emptied it takes a few minutes to get filled up.
37.11	**37.11 Additional Regulations for Ladies Hostel** In addition to the general regulations for residents, the following rules are also particularly applicable to the residents of the Ladies Hostel for strict adherence. 37.11.1 Parents/guardians must submit to the Warden In-charge a list of relatives/outsiders along with their addresses duly signed by them who are allowed to see the students and who can take them out. 37.11.2 All the girl's resident of hostel must submit application to warden signed by their parents before she stays out of hostel or leave the hostel except in cases of medical emergencies & normal semester/annual break of University/College. 37.11.3 Normally all the boarders must return to their respective hostels by 6PM every day. Those who are returning after 6 PM must enter into the register the purpose for staying out beyond 6 PM. Whatsoever, all the boarders must be inside the hostel by 8 PM. Such students who have any laboratory work beyond 8 PM must submit their application duly forwarded by the concerned guide and HOD. 37.11.4 All visitors to the Ladies Hostel are required to sign in the visitor's register on each visit to the hostel specially kept for this purpose in the Girls Hostel and state their relation and purpose of visit. Their visit will be limited to the Common Room only and not in the room of the student. 37.11.5 The following visiting hours shall be observed in case of girl residents:

	Sr. No.	**Day**	**Timings**
	a.	Wednesday	3.00 P.M. to 6.00 P.M.
	b.	Holidays including Sundays	9.00 A.M. to 6.00 P.M.
	However, the above visiting hours may be changed by the Hostel Warden with prior approval of the Director Students Welfare.		
37.12	**37.12 Hostel Administration** **37.12. 1. Hostel Warden** Every hostel shall have a Warden, who will be responsible for the administration of the hostel and for enforcement of the hostel rules. i. The Warden will be appointed by the Director Students Welfare in consultation with the Dean(s) concerned from amongst the teachers, normally for a term of 2 years. The Warden(s) will be paid fixed amount and rent free accommodation for this additional responsibility and mobile telephone facility. ii. The Warden will have the authority to enter the room of any student and also make a search of the room, when necessary. He/ She will also have the authority, when the need arises, to break open the lock of any room and also to shift the belongings of a student to any other place. iii. The Warden will have the authority to confiscate any unauthorised electric or other appliances or gadgets being used by a student and also to impose or recommend the imposition of a fine for such un-authorised use. iv. Subject to instructions that may be issued, from time to time, by the Chief Warden or Director Students Welfare, the hostel Warden will make allotment/re-allotment of rooms in the hostel and such allotment shall be final. v. After the general allotment and at the beginning of each subsequent semester, the Hostel Warden shall send a complete list of the students staying in his/her hostel along with their room numbers to the Chief Warden/Director Students Welfare and the Dean concerned. **37.12.2 Responsibilities of Hostel Warden** i. He/she will be responsible for the allotment of hostel rooms in accordance with the hostel rules and for the maintenance of discipline within the hostel. ii. He/she will attend the hostel office daily at least for one hour at a specified time, which will be notified on the notice board for the information of the students. However, he/she can make surprise visits to hostel/rooms. iii. He/she will be responsible for the supervision of the working of the staff placed under him/her who shall take order from him/her. He/ She will report to the Chief Hostel Warden/Dean/Director Students Welfare for disciplinary action of any instance of dereliction of duty or negligence or misbehaviour on the part of staff. iv. He/she shall report to the University Medical Officer all cases of illness or accidental cases occurring within Hostel only and ensure that the students concerned receive proper medical care. He/she will also inform the Chief Warden/Dean/Director Students' Welfare regarding all such cases immediately. v. He/she will inspect the kitchen, the dining room, the common room and other facilities, etc., regularly and when any defect is noticed, he/she will have to take appropriate measures to set it right. vi. He/she will appoint the Prefects of the hostel, among the resident students on the basis of merit, conduct and behaviour with colleague, as prescribed in the relevant rules and supervise their work. vii. He/she shall ensure that no un-authorised person stays in the hostel. viii. He/she shall, with the help of his/her staff and/or Hostel Prefects check the un-authorized and misuse of electrical appliances. ix. He/she will be responsible for the proper organisation and conduct of hostel functions, festivals, etc. Within the hostel, the Hostel Warden/Chief Hostel Warden will be responsible to the Director Students' Welfare for the maintenance of discipline and good behaviour of the residents, and will keep the Director Students Welfare/Dean concerned informed of all acts of indiscipline and misbehaviour and the action taken by him/her.	

37.13	**37.13. Hostel Management Committee** 37.13.1 Every hostel shall have a Hostel Committee consisting of the Hostel Warden, who shall be the Chairman, Prefect(s), Common Room Secretary, Mess Manager(s) and ward boy/hostel clerk (if any). 37.13.2 The Hostel Committee shall meet at least twice every month or earlier, if it is necessary. 37.13.3 This committee shall look after all matters relating to the welfare of the hostel residents including ragging, maintenance and management of the hostel premises Common Room, Kitchen(s), Canteen (if any), purchase of newspapers and magazines, organisation of functions, etc. 37.13.4 The Hostel Warden will communicate to the Warden/Director Students Welfare under intimation to the Dean concerned, the proceedings of all these meetings, drawing his/her attention to the grievances or difficulties experienced by the students and to their complaints or suggestions so that these may be attended to promptly.
37.14	**37.14. Utilization of Funds** All hostel funds, including: (a) Hostel maintenance fund, (b) Hostel utensils and crockery breakage fund, (c) Common room fund, (d) Newspaper charges, (e) Electricity and water charges, will be operated by the Director Students Welfare who shall keep the money in a bank account authorised by the University. 37.14.1 The Director Students Welfare is authorised to make purchase/incur expenditure of the hostel funds for the following purposes: 37.14.1.1Electricity and Water charges: Payment of electricity and water charges. 37.14.1.2 Hostel maintenance fund: Purchase of stationery, repair of hostel furniture, hiring and cartage of furniture, repair and maintenance of hostel premises etc. 37.14.1.3 Common room fund: (a) Purchase of newspapers and magazines and equipment for indoor games and repair of such equipment, (b) repair of television set/subscription fee for channels, and (c) organization of hostel functions and other festivals, including hostel competitions and incidental expenditure relating there to, including refreshment, award of prizes, renting of loud-speakers, shamans, furniture, crockery, etc., and any other expenditure relating to the promotion of co-curricular activities in the hostel. 37.14.1.4 Utensil fee: Purchase, replacement, maintenance, repair and tinning of utensils, crockery and cutlery. Cooking Gas, gas pipelines and related fittings 37.14.1.6 Other funds: Any other expenditure relating to the welfare of residents of the hostel and maintaining the hygiene of hostel premises/garden area, etc. 37.14.1.7 The Director Students Welfare in consultants with concerned Dean will have the authority to write-off or declare any article purchased out of hostel funds as unserviceable and order its disposal in the best interest of the hostel. Any amount realized through such disposal shall be credited to the appropriate hostel fund.
37.15	**37.15 Appointment and duties of Hostel Prefect** Prefects will be appointed every year by the Hostel Warden from amongst senior students of good standing to assist him in the administration of the hostel. Normally there shall be one Prefect for each wing of the hostel, subject to a maximum of two Prefects per hostel. The prefect of the hostel shall be exempted from the payment of Hostel room rent. The Prefect shall perform the following duties: 37.15.1 Take the night roll call of the hostel residents in his/her block/wing, as prescribed in these rules and report to the Hostel Warden about all the absentees at the time of the roll-call as well as about absentees during the whole night. 37.15.2 Failure of Prefect to report such cases to the Hostel Warden will amount to a gross negligence on his/her part for which the Warden may remove him/her from his/her Prefect ship. 37.15.3 To ensure that all hostel rules are observed by the students of his/her block/wing and bring to the notice of the Warden any breach of these rules by any student in that block/wing. 37.15.4 To look after the sanitation of his/her block/wing and bring to the notice of the Warden any failure or negligence of the sanitary staff of the hostel in the performance of their duties. 37.15.5 To be available and approachable by all students of his/her wing/block and to show interest in

	their welfare activities. 37.15.6 To report to the Warden and Medical Officer every case of illness and to ensure that the sick student is taken care of promptly. 37.15.7 In the performance of his/her duties, the Prefect shall use persuasive and not coercive methods, and shall not under any circumstances take the law into his/her own hands.
37.16	**37.16. Night Roll-Call** 37.16.1 The night roll-call will be taken by the concerned Prefect at 9.00 P.M. in winter and 10.00 P.M. in summer. Every student must be present in his/her room to avoid inconvenience to the Prefect at the time of roll-call. 37.16.2 A student found absent at the time of the roll-call, without making any entry in the register, shall be liable to a fine of Rs. 20/- per absence. The list of absentees and fines imposed on them will be put up on the notice board at the end of each month. 37.16.3 After the roll call, no student is allowed to leave the hostel. However, in a case of emergency, he must inform the Prefect of his/her block who, in turn will inform the Hostel warden next morning. The Hostel warden. If he/she so likes, will verify the cause of his leavings the hostel and shall report of the Dean/DSW. 37.16.4 However, the students who wishes to go out of the hostel for a few hours in the evening for any bonafide purpose and may not return in time for the roll-call, may do so after making the following entries in the register kept for the purpose with the Watchman: i. Date, ii. Name, iii. Room Number, iv. Time of leaving the hostel, v. Reason for leaving the hostel and vi. Probable time of return. 37.16.5 Absence from the hostel during the night, without the permission of the Hostel Warden, will be deemed to be an act of indiscipline and punished accordingly. Where a student is found to be guilty of such an offence too often, the Hostel Warden may recommend his/her expulsion from the hostel.
37.17	**37.17. Absence from Hostels** 37.17.1 For leave or absence from the hostels, students shall obtain prior permission from the hostel wardens. 37.17.2 Students shall not remain absent from their rooms after 9.00 P.M. in winter and 10.00 P.M. in summer without prior permission of the Hostel Warden. 37.17.3 Unauthorized absence from the hostel, even overnight, will be considered as indiscipline. 37.17.4 Student who wishes to be in the Laboratory after 10.00 P.M. for research work should obtain prior permission from hostel authorities after due recommendations of their Guide/Head of the Department. 37.17.5 In case of students, remaining absent from the hostel without prior permission for a period of more than 15 days, the hostel authorities may open their rooms and get them vacated after preparing an inventory of the articles found in the room and no claim for the loss or damage of personal articles shall be entertained.
37.18	**37.18. Vacation of Hostel Room** 37.18.1 Any student going outside the Institute/Campus/Centre for more than two months for any reason, including temporary dropping will have to vacate the hostel accommodation. 37.18.2 In the event of suspension or cancellation of registration of a student, he/she shall have to vacate the hostel within twenty-four hours of issue of such intimation/office order. 37.18.3 The student will have to vacate the hostel room and hand over the charge of room as well as other articles issued to him/her and obtain a 'No Dues' certificate to that effect from the Warden In-charge at the time of vacating the hostel.
37.19	**37.19. Leave Rules** 37.19.1 Leave granted for absence from the college will not mean leave for absence from the hostel. Leave for absence from the hostel for one or more nights must have the approval of the Hostel Warden. 37.19.2 A student absenting himself/herself from the hostel, without getting his/her leave sanctioned, may be subjected to a fine of minimum Rs 50/- per day or other disciplinary action.

37.20	**37.20. Student's Guest** 37.20.1 No student's guest(s)/ex-student(s) are permitted to stay in the hostel room occupied by him/her except in the case of father/brother, provided that he comes at an odd hour for single day only. The name and relationship of the guest so allowed will be entered in the guest register kept in the hostel. 37.20.2 The limited guests (only close relatives of the students such as father/brother) accommodation facility can be availed by the students in hostel guest room if available on payment basis for a maximum period of 5 (five) days after depositing the amount in advance in the office. The application form can be made available with Hostel Section during working hours. 37.20.3 Normally, no guest shall be allowed to stay for more than 5 days but in exceptional/unavoidable circumstances, permission can be granted on merit by the Hostel Warden/Dean of the concerned College. 37.20.4 Lady guests are not permitted in any case to visit the room and stay in the hostel meant for boys. 37.20.5 No guest is allowed to stay in the Girls Hostel in any circumstance. 37.20.6 A boarder keeping guest without permission will be liable to the punishment.
37.21	**37.21 Ragging** Ragging is totally prohibited in the campus and all the students shall observe and abide by the rules & UGC regulations on curbing the menace of ragging in higher educational institutions 2009 under Section 26(1) (G) of the University Grant Commission Act 1956 dated 17.6.2009 published in the Gazette of India part-III, Section 4. Any student found guilty of ragging and/or abetting ragging, whether actively or passively or bearing a part of a conspiracy to promote ragging is liable to be punished in accordance with the aforesaid regulations. i. If any incident of ragging comes to the notice of authorities of the University, the concerned student shall be given an opportunity to explain and if his/her explanation is not found satisfactory, the authority would expel him/her from the Institute. ii. All the students have to submit an affidavit on plain paper as per approved Proforma of the annexure given in the Information Bulletin.

	PART -VIII: STUDENTS' DISCIPLINE
38	**Students' discipline**
38.1	**38.1 Conduct and discipline** 38.1.1 The students residing in the hostel shall be required to abide by the hostel rules and other instructions, as issued from time to time by the hostel authorities. Any breach of hostel rules and of such instructions will render a student liable to disciplinary action. 38.1.2 Students are required to cooperate with hostel staff, attendants/mess servants, canteen staff etc. They are not authorised to punish hostel workers. Any complaint of indecent or insult of hostel staff will be treated as an act of indiscipline to warrant further disciplinary action. 38.1.3 Ragging of any type will be dealt with severely and may result in expulsion from the University. 38.1.4 Students will not disturb residents by making noise or otherwise in the corridors or tuning electrical/electronic gadgets if these are being used in a manner, interfering with the studies and comfort of other inmates of the hostel. 38.1.5 All kinds of shouting, hooting, violent knocking or any other act or movement or behaviour likely to cause disturbance to inmates are strictly prohibited. 38.1.6 Students shall maintain discipline and a peaceful atmosphere in the Hostel. 38.1.7 A student may be fined or expelled from the hostel, rusticated or expelled from the college or subjected to other suitable punishment, depending on the circumstances by the authority competent to impose such penalty for the following reasons: **a.** Misbehaviour of any kind including disrespectful conduct towards officials and fellow residents. **b.** Teasing and harassing other students and/or use of violence. **c.** Stealing or pilfering Hostel/University property or the property of other students. **d.** Unruly conduct or rowdyism. **e.** Writing on the walls or other parts of the hostel building or sticking of posters or distribution of unauthorised handbills or notices. **f.** Making noise and or creating other disturbance, including the use of transistor, etc. in such a manner as to disturb others. **g.** Ragging of any type will be dealt with severely and may result in explosion from the University. **h.** Participating or causing others to participate in strikes, demonstrations for disturbance of any kind or behaving or causing others to behave in such a manner as to bring the Hostel/College/University into disrepute. 38.1.8 All hostel inmates are expected to conduct in following manner: **a.** While visiting the Common Room, Dining Hall and the Canteen, the students shall be in proper dress. **b.** Students shall use or handle with care all property belonging to hostel. When a student is found guilty of wilful damage to hostel property, the Hostel Warden may recover the cost of repair or replacement and, in addition, also impose a fine or recommend the imposition of a fine depending on the circumstances. **c.** All rooms in the hostel shall be open for inspection by the Hostel Warden/ Chief Hostel Warden/Director Students' Welfare /Dean at any time during the day or night. **d.** Students shall not abuse, maltreat or assault hostel employees, including mess servants, and employees of the canteen, if any. **e.** All dealings of students with fellow-students and others shall be courteous. Quarrels or disputes with fellow-students shall be avoided. Students shall not under any circumstances, take the law in their own hands, but report such cases in writing to the Hostel Warden.
38.2	**38.2. Acts of Indiscipline** The following shall constitute the acts of indiscipline.

	38.2.1 Keeping or using any fire-arm, lethal weapon, knife with a blade of more than four inch length, in the room or outside. 38.2.2 Keeping or using intoxicants in any form. 38.2.3 Gambling in any form. 38.2.4 Ragging, bullying or harassing of students. 38.2.5 Demonstration in any form including processions and unauthorized meetings. 38.2.6 Strike-or-hunger strike. 38.2.7 Boycotting of any University function, programme of activity or even classes. 38.2.8 Abusing or insulting any teacher or staff member or among students themselves. 38.2.9 Recourse to violence, assault, intimidation, rioting. 38.2.10 Showing or causing to show any disrespect to a teacher or staff member of the University. 38.2.11 Incitement to commit any act of indiscipline. 38.2.12 Any breach of law of the country or the state or the Statutes Regulations or Rules or the University or orders of a competent authority. 38.2.13 Disturbing other students in their studies. 38.2.14 Damaging any University property. 38.2.15 Disorderly behaviour in any form. 38.2.16 Attending or organizing meetings in hostel or college premises, other than those authorized by the Warden/Dean and participation in such meetings. 38.2.17 Displaying notices, leaflets, or posters, not signed or countersigned by the Warden or other University officer authorized by the Vice- Chancellor, at the hostel and University notice boards or other places or distributing such notices or leaflets. 38.2.18 Any act specifically forbidden by the Vice- Chancellor, Dean/Chief Warden/Director Students Welfare, Warden of respective hostels/ or any other of the University competent to pass such an order. 38.2.19 Any other act intended or calculated to cause inconvenience, annoyance, injury or damage to any other inmate of the hostel, employee of the University or a resident of the campus or guest and visitors to the university. A boarder found guilty of having committed a breach of rules shall be liable to appropriate punishment by the DSW/Dean concerned or by the Chief Warden on report from Hostel Warden. The DSW/Dean concerned may refer it to University Disciplinary Committee for Punishment or may impose any of the following punishments on such boarder/s. o Warning (simple or severe) o Fine up to Rs. 2000/- o Expulsion from the hostel 38.2.20 The Warden of a hostel may impose any of the following punishment on such boarders under his charge. o Warning o Fine up to Rs. 500/- o All actions leading to punishment will be recorded in the personal file of the student and communicated to his guardian.
38.3	**38.3 Grading for Conduct and Discipline** a. Each student shall be graded in respect of discipline by the warden of the Hostel, in consolation with the Advisor of the student concerned, at the end of each Semester/year in the following categories: A Exemplary B Good C Fair D Bad ii. The grades in conduct and discipline in respect of each student shall be forwarded to the Dean with a copy to the Registrar, at the end of each Semester, by the Warden of the Hostel concerned through the Chief Warden/DSW who may revise the grade for reason to be recorded in writing. iii.The student who secures 'D' grade in conduct and discipline in any year shall be placed on

	conduct probation.
38.4	**38.4 Discipline and Formation of Disciplinary committee** i. Dean of the faculty shall be responsible for the maintenance of discipline among students in their colleges, hostels, playground and any other part of the campus and also among the students going outside the campus in connection with the work of the University. ii. There shall be a Disciplinary Committee in each college campus and University level consisting of the following members. **38.4.1University level committee** (a) An officer of the University to be nominated by the Vice- Chancellor - Chairman (b) All Deans and Directors – Members (c) Director Students Welfare – Convenor **38.4.2Campus committee** (a) Dean of the College – Chairman (b) Three University Professor-cum-Head of the Departments shall rotate annually as per alphabetical orders of the University Departments, provided that in colleges where there are no University professors, the membership will rotate among the college Heads of Department on the same basis – Member (c) Where there is more than one college at a University campus, the Dean of the other college shall also be a member – Member (d) Chief Warden– Member Secretary
38.5	**38.5Awarding punishment for breach of discipline** For minor offenses, black marks should be awarded and a record in this regard shall be maintained. A student who is given more than 3 black marks is liable to fine or other suitable punishment as follows; 38.5.1 Suspension from hostel 38.5.2 Suspension for one semester. 38.5.3 Rustication of student till the end of session. 38.5.4 Expulsion for one or more academic session. 38.5.5 Temporary or permanent withdrawal of fellowship, financial aid, etc. 38.5.6 Removal/debarring from part-time employment 38.5.7 Recommendation for expulsion/rustication from the college (as per procedure laid down in the Academic Regulation). 38.5.8 Recommendation of closure of Institution for a specific period. 38.5.9 The committee report should be sent to the Vice- Chancellor who may examine the enquiry report, and if considered necessary the student may be removed from University. Any organize act of indiscipline observed among a large number of student intended or calculated to cause any disturbance in the normal working of any institutions, department or section of the University, or to adversely affect the reputation of the University, or lowering of standards or excellence in any field of activity of the University, shall be deemed as constituting an organized act of indiscipline.
38.6	**38.6Disciplinary Action** The powers of disciplinary action of the Hostel Warden, chief hostel Warden, Director Students' Welfare and the Dean concern shall be as under, the punishment depending on the nature and severity of the offence: **38.6.1 Powers of Disciplinary Action Authorities** **Authorities** — **Powers** **38.6.1.1 Hostel Warden** i. Warning. ii. Fine up to Rs. 2,000/- on approval of Hostel warden. iii. Recommendation for expulsion from the hostel on

account of indiscipline and non-payment of hostel/mess charges and may recover the cost of the damaged property of hostel from the defaulters in consultation with DSW and Dean

iv. To recover the cost of the damaged property.

38.6.1.2 Chief Hostel Warden

i. Warning.
ii. Fine up to Rs. 5,000/-
iii. Expulsion from the hostel on account of indiscipline on approval of DSW & Dean.
iv. To recover the cost of the damaged property.

38.6.1.3 Dean

i. Warning
ii. Fine up to Rs. 10,000/-
iii. Placement on Conduct Probation
iv. Temporary or permanent suspension of Scholarship/Fellowship.
v. Recommendation for permanent expulsion from the Institute.

All actions leading to punishment will be recorded in the personal file of the student and communicated to his Parent/guardian.

38.6.1.4 Vice- Chancellor

Apart from the punishment prescribed under Regulation elsewhere or any of the following punishment may be imposed by the Vice-Chancellor upon any student/group of students after enquiry as he may deem fit.

38.6.1.5 Disciplinary Committee (DC): The Matter related to any act of indiscipline activities in the hostel premises or related to hostel can also be referred the disciplinary committee by the DSW, Dean or Vice-chancellor as and when they feel.

The disciplinary committee shall comprise of following members.

i.	DSW	Chairman
ii.	Dean	Member
iii.	Chief Warden	Convenor
iv.	One senior teacher nominated by VC on the recommendation of DSW for a period of two year	Member
v.	Warden (any one where there are more than one warden on rotation basis for two year period)	Member
vi.	Any other officer nominated by VC for particular case	Member

The disciplinary committee have power to call anyone (except Vice-chancellor) if the case referred to them required to do so.

The DC may record either any of the following as they deem so for that act of indiscipline.

38.6.1.5.1 Monetary fine to individual student without any limit. Collective/group fine may be imposed on a group of students as a whole, when the V.C, on the recommendation of Disciplinary Committee is of the opinion that it is not possible to fix the responsibility on individual member of the group for any act of indiscipline.

38.6.1.5.2. Reprimand on Record: This shall consist of an official communication to the students not to repeat any act of indiscipline. This will be noted on student's permanent report card but not on any outgoing transcript.

38.6.1.5.3 Conduct Probation: This will consist of placing the student on conduct probation with a warning that one or more serious incident might lead to his dismissal from the University. The inmate will be removed from such probation by the end of conduct period on satisfactory report of his/her conduct and certification by his/her Advisor/Warden/Dean. The conduct probation period can be reduced/condoned by the disciplinary committee based on the recommendation of the concerned Dean having satisfactory reason.

38.6.1.5.4 Suspended Dismissal: The student shall be dismissed from the University for a specific Semester (but dismissal shall be held in abeyance till the end of Semester to enable the student to complete the semester). This fact shall be entered in the permanent record card and shall also go out on transcript of the student till he is re-admitted. In case, however, the transcript is issued after re-admission the same should not be entered in the outgoing transcript.

38.6.1.5.5 Temporary Dismissal: The student shall be dismissed from the University for a specific semester (s) and required to leave the University immediately. This shall be entered in the permanent record card and shall also go out in the transcript of the student if the same is issued during the period of temporary dismissal. It shall, however, not be mentioned in the outgoing transcript in case the transcript is issued after re-admission.

38.6.1.5.6 Permanent Dismissal from the University: The student shall be dismissed permanently from the University& shall be required to leave the University Immediately. The punishment shall be entered in the permanent record card and transcript of the student and he/she shall be debarred from re-admission to the University for any Further Programme.

38.6.1.5.7 Rustication from the University: The Punishment shall be entered in the permanent record card and transcript of the student and he/she shall be debarred from admission to this University as well as other Universities. In all such cases, the names, of the rusticated student(s) would be circulated to other Universities/Deemed Universities of India.

38.6.1.5.8 Additional Measures in case of organized indiscipline: Apart from any punishment that may be imposed by the competent authority under these regulations for any act of indiscipline, in case of organized indiscipline any of the following measures may be taken by the Vice- Chancellor or on being authorized by him, the Dean of the concerned college.

38.6.1.5.9 Closure of the Institutions *sine die*, with or without prescribing a minimum period or for a specific period:

- Cancellation of semester.
- Suspension or cancellation of any academic programme for any category of students.
- Vacation of the hostel by closure of the hostel for the institutions as a whole or any particular group or category of students. In all such cases, the students shall vacate the hostel within the prescribed time-limit, failing which they may forcibly be evicted, and/ or otherwise suitably punished for disobedience of orders.

38.6.1.5.10 Suspension pending conclusion of the Enquiry: The Vice- Chancellor may in his discretion, suspend any student pending the conclusion of enquiry against him/her (student).

38.6.1.5.11. Group Punishment/ Fine

A group fine, not exceeding twice the current value of the damage caused to the University/ Institute property by a group of students, as a result of any agitation or otherwise, may be imposed on the group as a whole, when the Chief Warden & Dean is of the opinion that it is not possible to fix the responsibility on individual members of the group for the damage.

38.7

38.7 Punishment for the act of Indiscipline

Different types of act of indiscipline observed at hostel level shall be dealt by concern Hostel Warden and the cases of act of indiscipline both at hostel and inter hostel level shall be dealt by Chief Warden. All the cases of act of indiscipline at University level or other referred cases shall be dealt by Disciplinary Committee of the University. Registrar of the University shall issue the letter of the said punishment immediately after the decision. For the different acts of indiscipline any one or all or as decided by the committee or the concerned authority (as empowered by this rule), from the following punishments as deemed fit, may be imposed -

Sl. No.	Act of indiscipline	Punishment

	1.	Keeping or using any fire arms/or lethal weapons in the room or outside	i. Fine up to Rs. 2000/- ii. Conduct probation iii. Expulsion from the hostel /University iv. Legal action as per law of land
	2.	Misuse of electricity, use of heaters, AC in the room etc.	i. Reprimand of Record ii. Fine up to Rs. 2000/- iii. Confiscation of the items
	3.	Keeping/ consuming intoxicating drinks/ drugs or alcohol in any forms	i. Reprimand of Record ii. Fine up to Rs. 2000/- iii. Conduct probation iv. Expulsion from the hostel
	4.	Ragging, bullying or harassing of fellow students	As per UGC guidelines or as directives of supreme court ruling.
	5.	Making noise or creating other disturbances including use of high sound producing devices which create problem to other inmates of the hostel &disorderly behavior	i. Reprimand of Record ii. Fine up to Rs. 1000/-
	6.	Writing on walls of the hostel or other building/ sticking of the posters/ distribution of unauthorized posters or notices, damaging of university property in any form	i. Reprimand of Record ii. Fine up to Rs. 2000/- iii. Conduct probation iv. Recovery up to double the current cost of the item v. Expulsion from the hostel /University
	7.	Stealing/pilfering hostel/university or other property	i. Fine up to Rs.5000/- ii. Conduct probation iii. Expulsion from the hostel /Universi iv. Legal action as per law of land
	8.	Quarrels or disputes with fellow students, recourse of violence, assault, intimidation, riots or any other related activity, inciting others to commit any act of indiscipline, physical injury, man-handling of fellow students or employees or anyone else, displaying hostility towards members of the faculty or institute employees or their family members, institute guests or any other person in the campus of the Institute, unruly conduct/ rowdyism	i. Reprimand of Record ii. Fine up to Rs. 2000/- iii. Conduct probation iv. Expulsion from the hostel /Universi v. Legal action as per law of land
	9.	Gambling in the hostel or university premises,	v. Reprimand of Record vi. Fine up to Rs. 2000/-

			disobey/disregard the hostel rule, notice, orders etc., providing shelter to outsiders in the Hostel	vii. Conduct probation
		10.	Boycotting of any University function, programme or activity, preventing any student from attending the classes, functions, programmes or any other activity of the Institute	i. Reprimand of Record ii. Fine up to Rs. 2000/- iii. Conduct probation iv. Expulsion from the hostel / University
		11.	Showing or causing to show any disrespect to a teacher or officer or any misbehavior or intimidation of any employee of the Institute	i. Reprimand of Record ii. Conduct probation
		12.	Anti- national activity including any breach of law of the country or the state and of the statute Regulations, Rules of the Institute or order of a competent authority	i. Reprimand of Record ii. Fine up to Rs. 2000/- iii. Conduct probation iv. Expulsion from the hostel /Universi
		13.	Convening/ organizing/ attending unauthorized meeting or programmes in the hostels or Institute and participation in any such programmes	i. Reprimand of Record ii. Fine up to Rs. 2000/- iii. Conduct probation
		14.	Display of notices, leaflets or posters not signed or countersigned by the Hostel Warden/ Chief Warden or any other officer of the university at the Hostel and Institute's notice Boards or other places	i. Reprimand of Record ii. Fine up to Rs. 2000/- iii. Conduct probation
		15.	Forging of signatures in any way of the faculty member/students at the time of registration/ any other time. Submitting fake certificates	i. Reprimand of Record ii. Fine up to Rs. 2000/- iii. Conduct probation iv. Expulsion from the University
		16.	Eve-teasing, molestation, sexual assault, it's attempt	i. Conduct probation ii. Expulsion from the University iii. Legal action as per law of land Or as per prevailing rule for wo harassment
		17.	Meeting guests at other than the designated place or taking guest to his or her own room	i. Fine up to Rs. 2000/- ii. Conduct probation
		18.	Strikes/demonstration or	i. Reprimand of Record

	disturbance of any kind. Demonstration in any form including procession	ii. Fine up to Rs. 2000/- iii. Conduct probation iv. Expulsion from the University
19.	Coming late in the hostel after prescribed time without the permission of the authority	i. Reprimand of Record ii. Fine @ Rs. 200/- per absence iii. Conduct probation
20.	Keeping animals in the hostel/ room	i. Reprimand of Record ii. Fine up to Rs. 2000/- iii. Conduct probation
21.	Smoking at common place, use of tobacco in the hostel/ offices	i. Reprimand of Record ii. Fine up to Rs. 2000/- iii. Conduct probation
22.	Parking of vehicles i.e. cycle/motorcycle in the place other than the designated space	Fine up to Rs. 500/-
23.	Keeping vulgar literature, observing adult CD, videos, films, clips etc.	i. Reprimand of Record ii. Fine up to Rs. 2000/- iii. Conduct probation
24.	Using electronic /print/social media for defaming the institute, its employees, fellow students etc. in any form or use of abusive language/assault of any kind	i. Reprimand of Record ii. Fine up to Rs. 2000/- iii. Conduct probation iv. Expulsion from the University
25.	Any other activity which has not been mentioned above but felt as act of indiscipline by the university authorities and/or disciplinary committee	i. Reprimand of Record ii. Fine up to Rs. 2000/- iii. Conduct probation iv. Expulsion from the University

All the recommendations of the Disciplinary Committee shall be forwarded to the DSW& Dean for the approval of the penalty. The penalty discussion must be communicated to the Vice-Chancellor for his perusal. Vice-Chancellor has all the rights to ask for re-examining the case, if felt so.

All the case against BASU will be subject to Patna Court's jurisdiction, only.

38.8 **38.8 Report of Incident**

The persons responsible for reporting and the authorities to whom the report is to be made are as given below:

Where the indiscipline misbehaviour occurs	Who will report	To whom report is to be made
In a class-room, lecture theatre, laboratory, farm or class/educational tour	Teacher/ In-charge	Head of Division/ DSW & Dean
On a play field/Auditorium	Coach/ Teacher/ In-charge	DSW & Dean through Officer In-Charge Sports

	At any place within or outside the campus including divisions and other buildings of the University	Any Teacher, Student or employee of the University	DSW & Dean
	In a hostel or its premises	The Warden	Warden/ DSW
	In a written or practical examination	The invigilator/ teacher conducting the examination	COE/Dean (PG) & Dean

	PART-IX AWARD OF SCHOLARSHIPS, BURSARIES AND ASSISTANTSHIP
39	AWARD OF SCHOLARSHIPS, BURSARIES AND ASSISTANTSHIP
39.1	**Financial Support to the Students-** Scholarship, Free-ship, Fellowship, Stipend and Assistantship shall be awarded to the prospective students of various faculties of this University as decided by the Academic Council and the Board of Management from time to time.
39.2	**General regulations for the award of stipend and financial support to the students** a) He/she should pass and must obtain at least GPA of 5.0 b) He/she should have attendance of at least 75% in all courses during last six months of class attendance, in case of B.V. Sc. & A.H. c) The stipend/Scholarship will be disbursed on half year basis. d) Stipend will not be given to students who are on academic or conduct probation. e) The stipend/Scholarship will not be given to students beyond $4\frac{1}{2}$ years in case of B.V. Sc. & A.H. students. f) No student shall be eligible to receive more than one financial assistance at a time. g) The continuance of financial support shall strictly depend upon the maintenance of good academic record, conduct, behaviour and attendance.
39.3	**University Stipend** a. Stipend shall be awarded to the students who are residents of the State of Bihar and have taken admission in the beginning of the academic session for the particular year. Migrated students shall not be eligible to get any stipend/fellowship including contingency grant from the University. b. The stipend of Rs. 2000 per month shall be awarded to all students (domicile of Bihar) admitted through NEET / ICAR/VCI, New Delhi under B.V.Sc. & A.H. for the normal period (Four and Half year) during degree programme. c. A sum of Rs. 6000 per year shall be given to all students (domicile of Bihar) towards purchase of books and other reading materials including stationeries for all students admitted through NEET / ICAR/VCI, New Delhi under B.V. Sc. & A.H. d. A student receiving scholarship / Assistantship from other sources, the stipend amount shall be paid after deducting the amount to the extent received from other sources. e. Students leaving the degree programme (or struck of his/her name) in between, due to any reason, they have to return all the fellowship/stipend to the University.
39.4	**Internship allowance** A sum of Rs. 15,000/- per month will be given to each Internee student, subject to time to time revision as per Government of Bihar rules. Further, 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.
39.5	**Eligibility of Graduating students for award of medals** a) He/She has obtained 7.5 OGPA. b) Those who fail in any course or repeat a course are not eligible for the award of Medal.

	c) He/She should not have been on Academic Probation, at any stage during degree programme. d) He/she should not have been on Conduct Probation, at any stage during degree programme. e) He/she should not have repeated any course of study i.e. He/she should have cleared all examinations in one attempt in prescribed year/semester. f) In case of a tie, the Medal shall be awarded to each of the candidates securing equal marks. g) Medal will be awarded to topper student of each batch. h) The medal shall not be admissible to such students, who have taken semester/year withdrawal and got 'F' grade. However, the students who have taken course withdrawal as per regulations shall be eligible for consideration of award of Medal, if otherwise, eligible for the same.

PART –X: CONVOCATION

40	**Convocation**	
40.1	**40.1**	**Holding of Convocation to Confer Degrees**
	40.1.1	A convocation shall be held for conferring 'Degrees' to the successful candidates declared eligible for the award of degree by the Academic Council. The programme of the Convocation shall be approved by the Academic Council. Every successful candidate shall appear in person at the Convocation to receive the degree. In order to be eligible for obtaining the degree in a particular Convocation, the students shall submit the thesis at least two months in advance to the date of convocation or a date to be notified by the university from time to time. The degree may be awarded posthumously to a student if he/she had completed all the requirements for the award of degree including the final viva-voce examination, before his/her death.
	40.1.2	The University may hold convocation once in a year for the purpose of conferring Degree on a date and place to be fixed by the Chancellor in consultation with the Vice-Chancellor. The proceedings of the convocation shall be conducted in accordance with the Regulations made separately for the purpose. The Chancellor shall be the Head of the University and shall when present, preside at the Convocation of the University.
	40.1.3	The Chancellor and in his absence the Vice-Chancellor shall preside at the Convocation of the University and confer Degrees and other academic distinctions on persons entitled to receive it. The Vice-Chancellor shall be the Principal Executive Officer of the University and ex-officio Chairman of the Board, Academic Council and other authorities and shall in the absence of the Chancellor preside at the Convocation of the University and confer degrees on persons entitled to receive them.
40.2	**40.2**	**Annual Convocation**
	40.2.1	Normally, a convocation shall be held annually on the University campus to confer the degree on such date as may be fixed by the Vice-Chancellor in consultation with the Chancellor and the Chief Guest, unless it is decided that in a particular year formal convocation might not be held for reasons to be specified and that formalities for conferment of degree in absentia be completed by the Members of the Board of Management and the Academic Council in convocation without organizing a formal function or the convocation may not be held at all in that particular year and the degree may be awarded at the next convocation.
	40.2.2	Every candidate for a degree must appear in person at the Convocation to receive the degree. Such candidate should inform the Registrar in writing of his/her intension to be present. No candidate shall be admitted to the Convocation who has not sent his/her name to the Registrar within the prescribed time. In exceptional cases, the Vice-Chancellor may permit candidate who have not sent their names to Registrar within the prescribed time, to be admitted to the Convocation, provided their applications are received by the Registrar not later than 48 hours before the time of Convocation and are accompanied by a fine of Rs 100/- in each case. No candidate whose application and requisite fee is received later than 48 hours before the time of the Convocation will be allowed to take his/her degree at the convocation.
	40.2.3	Such candidates who are unable to present themselves in person at the convocation will be supplied their degree direct by the Registrar on application and on payment of a fee of Rs 200/-.
	40.2.4	Candidate must appear in the academic dress at the time of convocation.
	40.2.5	A rehearsal shall be arranged on or before the day of Convocation at which candidates for receiving degree must be present.
	40.2.6	Registrar shall issue a notice to each recipient of a degree intimating the convocation programme and the procedure to be observed.
	40.2.7	Conferment of the Honorary Degree of the University may be given in the annual convocation on approval of Chancellor of the University.
	40.2.8	The Honorary Degree Recipients shall be seated on the dais as guest.

	40.2.9	The Honorary Degree Recipient shall put on the academic robes to which they are entitled to or the hood for the Ph. D degree recipients of the University.
	40.2.10	The Registrar shall read out the proposal of the University for the Conferment of the Honorary Degree in the following form: "The Board of Management of the Bihar Animal Sciences University, Patna on the recommendation of the Academic Council and confirmation by the Chancellor, have decided to confer the Honorary Degree of **Doctor of Science (*Honoris causa*)** on Mr./Dr. _____
	40.2.11	The Vice-Chancellor will present the Honorary Degree Recipients to the Chancellor in the following form. "Mr. Chancellor, I have the honor to present to you Mr. / Dr. _____ for conferment of the degree of **Doctor of Science (*Honoris causa*)** for his/her outstanding contribution to the objects of the University _____ (read out the citation). I pray Mr. Chancellor that Mr. / Dr. _____ be honored by conferring the degree of **Doctor of Science (*Honoris causa*)** of this University"
	40.2.12	The Chancellor will confer the degree in the following form: "By virtue of the authority vested in me as Chancellor of the Bihar Animal Sciences University, Patna. I confer the Honorary Degree of **Doctor of Science (*Honoriscausa*)** on Mr. / Dr. _____" (The Chancellor will decorate the recipient with hood and present the degree)
	40.2.13	In case, the Honorary Degree recipient may not be able to receive the degree in person, formal announcement for the award of the degree shall be made by the Vice-Chancellor in the Annual Convocation or Special Convocation in the following form: "The Board of Management of the Bihar Animal Sciences University, Patna, on the recommendation of the Academic council and confirmation by the Chancellor, has decided to confer the Honorary Degree for **Doctor of Science (*Honoriscausa*)** on Mr. / Dr. _____ for his/her outstanding contribution for the objects of the University (read out the citation). I pray Mr. Chancellor that Mr. /Dr. _____ be honoured by conferring the degree of **Doctor of Science (*Honoris causa*)** of this University in absentia."
	40.2.14	The Chancellor will confer the degree in the following form: "By virtue of the authority vested in me as Chancellor of the Bihar Animal Sciences University, Patna, I confer the Honorary Degree of **Doctor of Science (*Honoriscausa*)** on Mr. / Dr. _____ in absentia."
	40.2.15	Speech by the Honorary Degree Recipient.
	40.2.16	Observation by the Chancellor.
	40.2.17	Thanks by the Vice-Chancellor
	40.2.18	The Chancellor will declare the Special Convocation closed.
	40.2.19	Singing of the National Anthem.
	40.2.20	The Academic Procession will leave the pandal and the assembly will stand.
40.3	**40.3**	**Convocation Procedure**
	40.3.1	The Chancellor, Vice-Chancellor and Chairman of the Board of Management, Members of the Board of Management & *Members* of the Academic Council and other distinguished guests shall assemble in the place notified for in the following order to the Convocation Hall. The procession will be led by the Registrar. **REGISTRAR** **MEMBERS OF THE ACADEMIC COUNCIL** **DEAN OF FACULTIES** **MEMBERS OF THE BOARD OF MANAGEMENT** **DISTINGUISHED GUESTS** **VICE-CHANCELLOR AND CHAIRMAN, BOM** **A.D.C**

CHANCELLOR & CHIEF GUEST
SECRETARY TO THE CHANCELLOR

40.3.2 The Chancellor, Chairman of the Board of Management & Vice-Chancellor and Chief Guest shall be seated in the front of the dais as indicated below;

Vice-Chancellor Chief Guest Chancellor Guest(s) of Honour

40.3.3 On the procession entering the hall the assembly shall stand and remain standing till the Chief Guest, Chancellor, Chairman Board of Management and Vice-Chancellor, distinguished guests and members of the Academic Council, Board of Management have taken their seats.

40.3.4 The proceedings of Convocation will commence with the singing of the "*National Anthem*" or "*the University Song*". Then the Chancellor, if present, will declare the convocation open. When the Chancellor is not present, the Vice-Chancellor will declare the Convocation open.

40.3.5 The Vice-Chancellor shall read out the report.

40.3.6 The Honorary Degree, if any, shall then be presented.

40.3.7 The Registrar will then request the Deans of Faculties to present their students to the Chancellor/Vice-Chancellor of the award of Degree. The Deans shall present their students in the following order:

1. **Doctor of Philosophy**
2. **Master of Veterinary Science**
3. **Master of Technology (Dairy)**
4. **Master of Fisheries Science**
5. **Bachelor of Science:**
   - i. Veterinary Science & Animal Husbandry
   - ii. Dairy Technology
   - iii. Fisheries

All the recipients present will stand when the Dean presents them to the Chancellor/Vice-Chancellor for the Degree and will remain standing till admitted to the Degree.

Dean will say,

"Mr. Chancellor/Vice-Chancellor, I present to you candidates who have been examined and found qualified for _____ degree to which I pray that they may be admitted and on behalf of those who have been permitted to secure their Degree in absentia, I pray that they may also be admitted thereto."

The Chancellor/Vice-Chancellor will say:

"By the authority vested in me as Chancellor/Vice-Chancellor of Bihar Animal Sciences University, Patna, I admit you one and all, to _____ Degree and I charge you that ever in your life and activities you prove yourselves worthy of the same. I admit the other candidates also to the Degree in Absentia."

40.3.9 After the report of the Vice-Chancellor is over, there will be the exhortations as mentioned below:

कुलपति	मैं दीक्षा देता हूँ– सत्य बोलो, कर्त्तव्य–पालन करो, अध्ययनशील रहो।
स्नातकगण	मैं प्रतिज्ञा करता हूँ।
कुलपति	स्वस्थ बनो, समृद्ध बनो,

	उदार बनो।
स्नातकगण	मैं प्रतिज्ञा करता हूँ।
कुलपति	कृषि के विकास के लिए नए–नए अनुसंधान करों, नए ज्ञान का अध्यापन करों, अनुसंधान के परिणामों का प्रसार करो।
स्नातकगण	मैंप्रतिज्ञा करताहूँ।
कुलपति	सत्य से विचलित न होना, कर्त्तव्य से विचलित न होना, उत्थान कार्य से विचलित न होना, कल्याण कार्य से विचलित न होना।
स्नातकगण	मैं प्रतिज्ञा करता हूँ।
कुलपति	तुम्हारा जीवन मंगलमय हो।

40.3.10 After the distribution of Degree is over, the Registrar shall call the recipients of University Gold Medalists. They shall stand before the Chancellor/Vice-Chancellor who shall present the medals.

40.3.11 The Chancellor /Vice-Chancellor will introduce the Chief Guest and request him to deliver the Convocation Address.

40.3.12 The Chief Guest will then deliver the Convocation Address.

40.3.13 The Chancellor /Vice-Chancellor will then declare the Convocation closed.

40.3.14 Singing of *National Anthem*.

40.3.15 The Procession will leave the Convocation Hall in the following order and the assembly will stand.

40.4

REGISTRAR

SECRETARY OF THE CHANCELLOR

A.D.C

CHANCELLOR & CHIEF GUEST

DISTINGUISHED GUESTS

MEMBERS OF THE BOARD OF MANAGEMENT

DEAN OF FACULTIES

MEMBERS OF THE ACADEMIC COUNCIL

40.4 AWARD OF DEGREES IN ABSENTIA IN THE JOINT MEETING OF THE BOARD OF MANAGEMENT AND THE ACADEMIC COUNCIL

40.4.1 The date of joint meeting of the Board of Management and the Academic Council shall be the date as decided by the Chairman, Board of Management.

40.4.2 All the degree recipients shall be intimated by the Registrar through a letter that the degrees would be awarded without holding the formal convocation and that they should send the formal application for the same, the draft of which is annexed (Appendix-I).

40.4.3 The detailed procedure of the joint meeting of the Board of Management and the Academic Council for conferment of degrees in absentia without holding formal convocation shall be as under:.

(i) The Vice-Chancellor, Members of the Board of Management and the Academic Council shall assemble in a place and at the appointed time notified for the purpose.

(ii) The Vice-Chancellor shall declare the joint meeting open.
(iii) The Vice-Chancellor shall read out his report.
(iv) The Registrar shall then request the Deans of the Faculties to present the list of the degree recipients of their faculties for the award of degrees in absentia to the Vice-Chancellor. The Deans shall present the list in the following order:

1. **Doctor of Philosophy**
2. **Master of Veterinary Science**
3. **Master of Technology (Dairy)**
4. **Master of Fisheries Science**
5. **Bachelor of Science:**
   i. Veterinary Science & Animal Husbandry
   ii. Dairy Technology
   iii. Fisheries

The Dean shall say:

"Mr. Vice-Chancellor, I present to you the list of candidates who have been examined and qualified for the award of ..... Degree to which I pray they may be admitted.

The Vice-Chancellor shall say:

"By the authority vested in me as Vice-Chancellor, Bihar Animal Sciences University, Patna, I admit all the candidates who have been examined and found qualified for the .....degree."

(v) After the award of degrees is over, the Registrar shall present the list of recipients of the various Gold Medals
(vi) The Vice-Chancellor shall then declare the joint meeting closed.

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APPENDIX

Appendix -I

PROFORMA FOR OBTAINING THE DEGREE IN ABSENTIA
(To be sent through Speed/Registered Post)

To,

The Registrar
Bihar Animal Sciences University,
Patna, Bihar-800014

Dated.....

Sir,

This is to request you to please supply my degree as follows:

1. Name of the Degree.....
2. Full name (in capital letters) as per qualifying examination certificate:

In Hindi.....

In English.....

3. Present Mailing Address.....

Bank Draft/Cash Receipt for Rs 200/-(Two Hundred) only as fee for degree in absentia and Rs 50/- (Fifty) only for the degree, amount drawn in favour of the Finance Comptroller, Bihar Animal Sciences University, Patna with the following particulars is/ are enclosed.

Bank Draft/Cash Receipt No..... Dated..... Amount..... 1.

2.

Note: The absentia fee of Rs 200/- is compulsory. The cost of degree mount may be sent only if the mount is needed.

Yours faithfully,

Signature of Student

Reg. /Adm. No.....

IDENTIFICATION CERTIFICATE

Certified that Sri/Ms.....Adm. No .....who is applying for degree in absentia, is known to me and has signed in my presence.

Gazetted officer/MP/MLA/MLC
Principal of the Degree College/
University Teacher/ Officer with seal

OFFICE OF THE REGISTRAR

The student has also submitted his/her withdrawal form and no dues are outstanding against his/her name. He/ She has also submitted all the documents.

Degree sent vide letter no. .....

Date.....

Chief Clerk Registrar