

## Format for Syllabus of Theory Paper

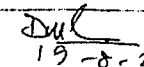
Part A Introduction			
Program: Certificate	Class :B.Sc.	Year: Ist Year	Session: 2021-22
Subject:			
1	Course Code	S1 - VET & 2T	
2	Course Title	Veterinary Anatomy Paper - II	
3	Course Type (Core Course/Elective/Generic Elective/Vocational/.....)	Core course	
4	Pre-requisite (if any)	To study this course, a student must have had the subject Biology in class/12 <sup>th</sup> . This course can be opted as a core course by the students of Biology.	
5	Course Learning outcomes (CLO)	After completion of this course, students will be able to : 1. Furnish the knowledge about the structure and forms of various organ systems, histology, embryology of domestic animals and birds. 2. Get thorough knowledge about the joints, muscles, blood vessels and nerves of Ox as a type of animal. 3. Provide anatomical knowledge which can be applied in physical and clinical examinations and prepare them to understand Pet's problems. 4. Prepare base to get employment in animal care hospitals, zoo or as animal care specialists in private & govt. sectors. 5. Get exposure to develop communication skills required in this field by preparing assignment and projects.	
6	Credit Value	4	
7	Total Marks	Max. Marks: 25+75	Min. Passing Marks:33

### Part B- Content of the Course

Total No. of Lectures-Tutorials-Practical (Two hours per week): 60 Hours

L-T-P:

Unit	Topics	No. of Lectures
I	<b>Abdomen :</b> 1. Study of bones of abdomen of Ox and differences in horse, dog, pig and fowl. 2. Study of joints, special ligaments, blood vessels, nerves of abdomen region. Blood and nerve supply to abdominal viscera. Study of peritoneal reflections. 3. Organs of digestive, Urinary, male and female reproductive systems present in abdomen and difference in horse, dog, pig and fowl. 4. Study of mammary glands in cow and difference in mare, bitch and sow. 5. Study of spleen of Ox and difference in horse, pig, dog and fowl. 6. Study of major veins, lymph vessels, lymph nodes and endocrine glands of abdomen. 7. Boundaries and clinical importance of the flank and para lumbar fossa. 8. Sites of liver, Gall Bladder and Caecal Bipoies, Lapartotomy, Rumenocentesis, Rumenotomy, Abomasotomy, Splenectomy.	20

  
 19-8-21  
 (Dr. Dinesh Kumar)

	<p>Cystostomy, Caesarean operation, enterotomy and paravertebral block.  <b>Keywords:</b> Abdominal cavity, joints, spleen of Ox, flank, abomasotomy, enterotomy.</p>	
II.	<p><b>Hind Limbs and Pelvis :</b></p> <ol style="list-style-type: none"> <li>1. Study of bones of hind limb and pelvis of Ox and difference in horses, dog, pig and fowl.</li> <li>2. Study of joints, ligaments, blood vessels, lymph nodes and nerves of hind limb, pelvis and tail region and pelvic viscera.</li> <li>3. Study of peritoneal reflections, organs of digestive, urinary, male and female reproductive systems present in pelvic cavity and difference in horse, dog, pig and fowl.</li> <li>4. Boundaries of the inguinal canal and structure of spermatic cord, pre pubic tendon and its importance.</li> <li>5. Study of external genital organs.</li> <li>6. Sites for Tibial, Peroneal, Plantar and Pubic nerve blocks, Patellar desmotomy, Urethrotomy, Castration, Vasectomy, Cranial and Caudal epidural anaesthesia.</li> </ol> <p><b>Keywords :</b> hind limb, Plevis, Peritoneal reflections, inguinal canal, external genital organs, Patellar desmotomy, vasectomy.</p>	20
III	<p><b>Cytology :</b></p> <ol style="list-style-type: none"> <li>1. Cell functions, Study of basic tissues i.e. epithelial connective, muscular and nervous tissues, blood and bone marrow.</li> <li>2. Study of microscopic, structures of digestive, circulatory, urinary, respiratory, nervous, lymphatic, endocrine glands.</li> <li>3. Male and female genital systems and mammary glands of domestic animals.</li> <li>4. Study of microscopic structures of sense organs i.e. eye, ear and integument.</li> </ol> <p><b>Keywords :</b> Cell junctions, epithelial tissue, microscopic structure of digestive system, eye and ear.</p>	10
IV	<p><b>Introduction to Embryology :</b></p> <ol style="list-style-type: none"> <li>1. Gametogenesis, Fertilization, Cleavage, Types of eggs, Morula, blastulation, Gastrulation.</li> <li>2. Types of implantation, twinning</li> <li>3. Formation of foetal membranes in mammals and birds.</li> <li>4. Placenta and its classification different germ layers and their derivatives.</li> <li>5. Study of development of organs of digestive system, development of tongue, teeth, salivary glands, liver and pancreas.</li> <li>6. Study of development of organs of respiratory, urinary, circulatory, lymphatic, nervous and musculo skeletal system.</li> <li>7. Study of development of male and female reproductive systems, Development of Endocrine glands and sense organs i.e. eye and ear.</li> </ol> <p><b>Keywords :</b> Gametogenesis, blastulation, implantation, Placenta, development of tongue, respiratory system.</p>	10

### Part C-Learning Resources

#### Text Books, Reference Books, Other resources

#### Suggested Readings:

- 1) Cappello, M & Aspinall, V. "Introduction to Veterinary Anatomy and Physiology". 2004.
- 2) Hayes, K, "Anatomy & Physiology of animals". M.L. Books International 2016.
- 3) Sally, J. Bowden, vn. "Introduction to Veterinary Anatomy & Physiology of workbook",

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- 2nd edition, Elsevier & health sciences, 2012.
- 4) Reece, W., "Functional Anatomy & Physiology of domestic animals by CTI reviews", Cram101, 2016.
  - 5) Jones M., "BSAVA Text book of Veterinary Nursing", British small animal veterinary association, 5th edition, 2011.
  - 6) Ghosh R.K., "Veterinary Anatomy" Current books international, 7th edition, 2018.
  - 7) Aspinall J. Richard J, Aspinall V, "Theory & Practice of Animal Taxonomy & Biodiversity".
  - 8) Colville Thomas P, "Clinical Anatomy", Mosby, 3<sup>rd</sup> Edition 2015.
  - 9) Saunders, "Veterinary Anatomy", Saunders, 2<sup>nd</sup> Edition 2015.
  - 10) Meehan Roberta M, "Fundamental of Anatomy & Physiology", Prentice Hall 1997.
  - 11) Bhambhurkar Vitthal R. "Veterinary Anatomy", New India Publishing Agency.
  - 12) Singh Baljit, "Dyve . Sack and Wensing's textbook of Veterinary Anatomy", Saunders.
  - 13) Jadon Narendra Singh "Veterinary Anatomy & Physiology", New India Publishing Agency, NIPA.
  - 14) Sathapathy Shrinivas & Mohapatra Swagat, "Essentials of Veterinary Anatomy & Physiology in Domestic Animals and Birds", Narendra Publishing House.

**Suggestive digital platforms web links :**

- 1) [https://www.youtube.com/channel/UCoNyjGQs--kMBdv\\_sWggA](https://www.youtube.com/channel/UCoNyjGQs--kMBdv_sWggA) for veterinary anatomy video lectures.
- 2) <http://www.drvet.in>bvsc-ah>.
- 3) <http://ims.tanu.vas.ac.in >view>
- 4) <http://evm.msu.edu>vet-school-tails>

**Suggested equivalent online courses:**

- 1) <http://ecourseonline.iasri.res.in>view>
- 2) <http://ecourses.icar.gov.in/e-Learning>
- 3) <http://UGVeterinary & Animal Husbandry-e-Krishiksha>.

**Part D-Assessment and Evaluation**

**Suggested Continuous Evaluation Methods:**

Maximum Marks : 100

Continuous Comprehensive Evaluation (CCE) : 25marks University Exam (UE) 75 marks

Internal Assessment :	Class Test Assignment/Presentation	15
Continuous Comprehensive Evaluation (CCE):25		10
External Assessment :	Section(A) : Three Very Short Questions (50 Words Each)	03 x 03 = 09
University Exam Section: 75	Section (B) : Four Short Questions (200 Words Each) Section (C) : Two Long Questions (500 Words Each)	04 x 09 = 36
Time : 02.00 Hours		02 x 15 = 30 Total 75

**Any remarks/ suggestions:**

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18-8-21  
(Dr. Dhanu Sharma)

**Head**

Deptt. of Zoology  
Govt P.G. College Barwani (M.P.)

## Format for Syllabus of Practical Paper

Part A Introduction			
Program: Certificate	Class : B.Sc.	Year: Ist year	Session: 2021-22
Subject:			
1	Course Code	S1-VETE 2P	
2	Course Title	Lab work of Veterinary Anatomy Paper- II	
3	Course Type (Core Course/Elective/Gener ic Elective/Vocational/....)	Core Course	
4	Pre-requisite (if any)	To study this course, a student must have had the subject Biology in class/12 <sup>th</sup> . This course can be opted as a core course by the students of Biology.	
5	Course Learning outcomes (CLO)	1) Course investigates the structure and function of the animals body most commonly seen in veterinary practice such a live stock, avian, laboratory animals. 2) The lab component will allow students to gain experience with the tools and techniques used to study the body on a macroscopic and microscopic level. 3) Demonstrate microscopy and dissection skills as they pertain to the cytology, histology and anatomy of animal species.	
6	Credit Value	4	
7	Total Marks	Max. Marks: 25+75	Min. Passing Marks:33
Part B- Content of the Course			
Total No. of Lectures-Tutorials-Practical (Two hours per week): 30 Hours			
L-T-P:			
Unit	Topics	No. of Lectures	
I	<b>Abdomen :</b> 1. Demonstration of Bones forming boundaries of abdomen of Ox. 2. Its comparison with horse, dog and fowl. 3. Dissection of muscles, blood vessels and nerves of abdomen. 4. Demonstration of peritoneum, omentum, mysentary and organs of digestive, urinary , male and female reproductive system its difference with horse, dog, pig and fowl. 5. Demonstration of mammary glands of cow, mare, bitch and sow. 6. Demonstration of major veins, lymph vessels, Topographic location of abdominal viscera of Ox. 7. Demonstration of sites for Laparotomy, Caesarean section, Ovariohysterectomy, catheterization of urinary bladder and sites for anaesthesia. 8. Sites for liver, Gall bladder, Caccal , biopsies. 9. Laparotomy, Rumenocentesis, Rumenotomy, Absomasotomy, spleenectomy. 10. Caesarian operation, catheterization of urinary bladder. 11. Demonstration of radiographs and videos of ultrasonography of organs of abdomen. <b>Keywords :</b> Bones of Abdomen, Peritoneum, omentam, mammary	8	

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	glands of cow, laparotomy, catheterization.	
II	<p><b>Hind Limb &amp; Pelvis :</b></p> <ol style="list-style-type: none"> <li>1. Demonstration of bones of hind limb of Ox (its comparison with horse, dog, pig &amp; fowl ).</li> <li>2. Demonstration of joints &amp; ligaments of hind limb and pelvis.</li> <li>3. Dissection of muscles, blood vessels, lymph nodes and nerves of hind limbs and pelvic cavity.</li> <li>4. Demonstration of organs of digestive, Urinary, male &amp; female reproductive systems in Pelvic cavity.</li> <li>5. Study of External genital organs, Clinical importance of femoral artery to record pulse in dog.</li> <li>6. Clinical importance of recurrent tarsal vein for intravenous injections in dogs.</li> <li>7. Demonstration of radiographs of normal bones &amp; videos of ultrasonography of organs of Pelvis.</li> <li>8. Demonstration of sites for Tibial nerver blocks, Potellar desmotomy, urethrotomy, castration, vasectomy &amp; anaesthesia.</li> </ol> <p><b>Keywords :</b> Bones of hind limbs, Dissection of muscles, tarsal vein, Tibial nerve block, Castration.</p>	8
III	<p><b>Microscopy and Micrometry :</b></p> <ol style="list-style-type: none"> <li>1. Comparison of light and election microscopy.</li> <li>2. Histological techniques, processing of tissues for paraffin sectioning and haematoxylin and cosin staining.</li> <li>3. Microscopic examination of epithelium, connective tissue, muscular tissue, nervous tissue and blood.</li> <li>4. Microscopic examination of organs of digestive, circulatory, urinary, respiratory, nervous, lymphatic, endocrine, male and female genital system and sensory organs of domestic animals.</li> </ol> <p><b>Keywords :</b> Light microscopy, Electron microscopy, Paraffin, Sectioning, nervous tissue, organs of circulatory system.</p>	8
IV	<p><b>Embryology :</b></p> <ol style="list-style-type: none"> <li>1. Demonstration of Placenta, Umbilical and foetal membranes of different domestic animals.</li> <li>2. Demonstration of congenital anomalies of domestic animals as per availability.</li> <li>3. Study of slides of developing organs of different systems as per the availability.</li> <li>4. A embalmed cadaver of buffalo calf (procured through donated animals or cardavards obtained from post motem sections) to be used for dissection purposes.</li> </ol> <p><b>Keywords :</b> Foetal membranes of domestic animals, Congenital anomalies of domestic animals, embalmed cadaver</p>	6

**Keywords/Tags:**

### Part C-Learning Resources

**Text Books, Reference Books, Other resources**

#### Suggested Readings:

1. Jones M R.e & ad Minuglsl:i neaux E., "BSAVA manual of practical of Veterinary Nursing", British small animal veterinary association, 4th edition, 2007.
2. Satha pathy, S., Joshi, S.K. & Singh, M.K., "A Handbook on Anatomy & Physiology of Domestic

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Animals & Birds", Satish serial publishing house, 2015.

3. Meshram Balwant, Mishra Pratiksha, Singh Gajendra, Parmar nishant, "Laboratory Manual for Veterinary Anatomy" Satish Serial Publishing House, 2021.
4. Cochram Phillip "Laboratory Manual for Comparative Veterinary Anatomy and Psychology", 2<sup>nd</sup> Edition, Delmar Cengage Learning, 2010.
5. The Merck Veterinary Manual, 11<sup>th</sup> Edition.
6. Color Atlas of Veterinary Anatomy, Volume III, The Dog and Cat.
7. Bowden Sally J. "Introduction to Veterinary Anatomy and Psychology work book", Butterworth Heinemann, 2<sup>nd</sup> Edition, 2012.

**Suggestive digital platforms web links :**

- 1) <http://ims.tanu.vas.ac.in>>view

**Suggested equivalent online courses:**

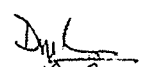
- 1) <http://ecourses.icar.gov.in/e-Learning>

### Part D-Assessment and Evaluation

**Suggested Continuous Evaluation Methods:**

Internal Assessment	Marks	External Assessment	Marks
Class Interaction /Quiz	10	Viva Voce on Practical	15
Attendance	5	Practical Record File	10
Assignments (Charts/ Model Seminar / Rural Service/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey / Industrial visit)	10	a) Spotting (Histological Slides, Models & charts - 5) - 20 b) Dissection - 10 c) Staining - 5 d) Identification of Bones, Congenital Anomalies, Placenta thorough Radio graphs or Models or Charts -5 15	50
<b>TOTAL</b>	<b>25</b>		<b>75</b>

**Any remarks/suggestions:** Dissection will be carried out on cadavers procured by way of donation of animals or animals obtained from post-mortem section and the donated animals should be either incurable or in terminal stages and preserved 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.

  
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