

**VOCATIONAL CURRICULUM – 2007**

**(WITH EFFECT FROM THE ACADEMIC YEAR 2007-2008)**

**CURRICULUM OF INTERMEDIATE VOCATIONAL COURSE IN  
MULTI PURPOSE VETERINARY ASSISTANT**



**STATE INSTITUTE OF VOCATIONAL EDUCATION,  
O/O THE COMMISSIONER OF INTERMEDIATE EDUCATION, A.P., HYDERABAD**

**&**

**BOARD OF INTERMEDIATE EDUCATION,  
A.P., NAMPALLY, HYDERABAD.**

## **FOREWORD**

The National Policy on Education (1986), focussed on the Programme of Vocationalisation of Education. The primary aim of Vocational Courses was to cut across several occupational fields and prepare students with employable skills in organized sector and for self-employment. Keeping in view the vision of National Policy on Education, Government of Andhra Pradesh introduced Vocational Education at +2 level.

Andhra Pradesh is an Agriculture – based state with livestock rearing as supporting livelihood option to farmers. It has enormous wealth of cattle, buffaloes, sheep, goat and poultry. The state has 9.3 million of cattle and 10.63 millions of buffaloes, 21.38 million of sheep and 6.3 million goats occupying 8<sup>th</sup>, 2<sup>nd</sup> 1<sup>st</sup> and 7<sup>th</sup> position in the country respectively. To cater to the needs of farmers in Veterinary field and to provide basic veterinary services to the society, Veterinary livestock Assistants in large number are required with sufficient skills in rural areas.

The Hon'ble Minister of Higher Education and the Hon'ble Minister of Animal Husbandry have reviewed the position and decided to start a Para Veterinary Course to cater to the needs of farmers in livestock Management and to provide employment to rural youth.

In view of the changing needs of the students and growing demand for skill competencies in the economy, the curriculum of a new course in veterinary field has been evolved to fulfill the needs of farmers and to create job opportunities to rural youth in addition to the existing Dairying Course in the field.

I am sure the present Curriculum will immensely be useful not only for the students, but also for the implementing agencies, teachers, book – writers, examiners and research workers. This will also help the students to gainful employment and for settlement in life with the skills acquired in the life stock arena.

**Hyderabad**  
**Date: 30.5.2007**

**Sd/- D.CHAKRAPANI**  
**COMMISSIONER OF INTERMEDIATE EDUCATION**

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## INTRODUCTION

Radical changes have taken place in education system in India due to globalization. It is a continuation process and should occur for development. The production of large number of educated youth as unfortunately not has been commensurated with the development job opportunities.

Agriculture is one of the major fields, which can absorb a considerable number of unemployed educated youth of the country. Animal Husbandry, which is considered as allied subject under agriculture, is gaining importance in employment opportunities as well as self-employment.

There is scarcity both in Government and private sectors for the Para veterinary staff. The growth of Animal Husbandry sector largely depends on availability of grass root level workers in the field. There are more then 2000 Para veterinary vacancies under the department of Animal Husbandry, A.P. and thousands of jobs in private sector viz. Dairy farms, poultry farms, sheep, goat and pig farms and related industries. There is lot of scope for self employment for Para veterinary staff in establishment of livestock farms; livestock based industries and consultancy services. This two year vocational course in multi purpose Veterinary Assistant is designed to train the educated youth to work as Para veterinary staff both in Government and private sector and also for self-employment

## II. OBJECTIVES OF THE COURSE

### General Objectives:

1. To train the students to scientifically undertake animal husbandry activities and preliminary knowledge about treatment and prevention of livestock diseases.
2. To create employment potential and man power for livestock development.

### Specific objectives:

1. To impart training in managerial practices of
  - a) Dairy animals
  - b) Sheep and goat production
  - c) Swine production
  - d) Poultry and other avian production
  - e) Pet and zoo animal management
2. To train the personal in animal improvement using artificial insemination programme.
3. To train the personal in treating common livestock diseases and prevention.
4. To develop abilities for collection of livestock samples for laboratory diagnosis.
5. To develop abilities for laboratory techniques to help in diagnosis of diseases.
6. To prepare livestock industry workers as capable organizers/supervisors/ Assistants / Extension workers / hatchery supervisors etc.
7. To develop abilities for production sale of livestock feeds and livestock products.
8. To develop abilities for quality control of livestock products
9. To gain knowledge about fodder production and its preservation methods.
10. To gain knowledge about care of post surgical treatment
11. To train the individuals in need based livestock operations like surveying, organization of livestock shows, Kisan melas, exhibition etc.
12. To prepare animal husbandry workers as a link between agriculture supporting organizations / Institutions and farming community.

### III. SKILLS TO BE PROVIDED

1. To recognize different livestock breeds.
2. To prepare project reports for establishment of livestock farms and livestock based industries.
3. First aid and treatment of basic livestock diseases.
4. Prevention of disease by vaccination programmes.
5. Handling of laboratory and hospital apparatus
6. Cleaning and sterilization of glassware, laboratory apparatus and hospital apparatus and equipment
7. Knowledge about different laboratory diagnostic procedure.
8. Accurate processing storage and dispatch of specimens and materials.
9. Accurate reporting and storage of clinical data
10. Diagnosing heat period and practice of artificial insemination methods.
11. Assisting animals during parturition and removal of retained placenta
12. Establishment of livestock farms and livestock based industries.
13. Planning and layout of fodder farms
14. Maintenance of livestock farms stores.
15. Maintaining records and resistance of livestock farms, hospital etc.
16. Raising of different classes of livestock.
17. Formulation of livestock and poultry feeds.
18. Techniques in disposal of farm wastes and dead carcass.
19. Knowledge about control of stray animals
20. Conducting farmers training programmes
21. Techniques for enhanced livestock production i.e., milk, meat, wool etc.
22. To develop entrepreneurship.

#### IV. JOB OPPORTUNITIES

##### a) Wage Employment:

1. Veterinary Assistant / Livestock Assistant
2. Farm Assistant / farm supervisor / hatchery supervisor / zoo animal assistant / Veterinary laboratory technician
3. Milk procurement supervisor / Assistant / livestock extension assistant
4. Artificial insemination assistant / inseminator / Gopal mithra assistant
5. Livestock farm supervisor / fodder supervisor
6. Livestock products sales promotion assistant / marketing supervisor / distribution assistant.
7. Livestock feed technician / feed supervisor / feed analysis assistant / livestock feed assistant
8. Paid secretary in milk cooperative and other livestock development societies.

##### b) Self Employment

1. Livestock farm owners (dairy farm, sheep farm, goat farm, poultry farm, rabbit farm, pet animal breeding farm etc.)
2. Fodder producers
3. Livestock feed manufacturer
4. Dealer / retailer for livestock products
5. Veterinary first aid centre owner
6. Artificial inseminator
7. Biogas plant operator
8. Slaughter house assistance
9. Contract services for livestock oriented workers.

**V. ANNUAL SCHEME OF INSTRUCTION AND EXAMINATION FOR  
VOCATIONAL COURSES 1<sup>ST</sup> AND 2<sup>ND</sup> YEAR**

**PART – A**

	Theory		Practicals		Total	
	Periods	Marks	Periods	Marks	Periods	Marks
1. English	185	75	-	-	185	75
2. G.F.C.	185	75	-	-	185	75

**PART – B**

**3. Vocational Subjects**

Paper – I	160	50	160	50	320	100
Paper – II	160	50	160	50	320	100
Paper – III	160	50	160	50	320	100

**PART – C**

4. On the job training	-	-	210	50	210	50
<b>Total</b>	<b>850</b>	<b>300</b>	<b>690</b>	<b>200</b>	<b>1540</b>	<b>500</b>

**SCHEME OF INSTRUCTION PER WEEK FOR VOCATIONAL COURSES**

**PART – A**

	Theory	Practicals	Total
1. English	6	-	6
2. G.F.C.	6	-	6

**PART – B**

**3. Vocational Subjects**

Paper – I	5	5	10
Paper – II	5	5	10
Paper – III	5	5	10

**SYLLABUS****I Year****Part – A**

1. Communication skills in English
2. General foundation course

**Part – B**

Vocational subjects

PAPER –I      Anatomy, Physiology, Microbiology and Parasitology

PAPER –II     Ruminant Animal Production and Management

PAPER –III    Laboratory Techniques and Pharmacology

**Part-C**

On Job Training

1. Dairy farms
2. Sheep and Goat farms
3. Feed Plants
4. Fodder plots
5. Veterinary hospitals

**II Year****Part – A**

1. Communication skills in English
2. General foundation course

**Part –B**

Vocational subjects

PAPER –I      Non Ruminant Animal Production and Management

PAPER –II     Common Livestock diseases and their Prevention

PAPER –III    Animal Reproduction, Hospital Management and Surgical  
Nursing Care

**Part-C**

On Job Training

1. Veterinary hospital

**1<sup>ST</sup> YEAR PAPER-1  
THEORY**

**ANATOMY, PHYSIOLOGY, MICROBIOLOGY AND PARASITOLOGY**

<b>SL.NO.</b>	<b>NAME OF THE CHAPTER</b>	<b>No. of PERIODS</b>
1.	Skeletal system	20
2.	Muscular and nervous system	15
3.	Digestive system	20
4.	Respiratory system	15
5.	Circulatory system	15
6.	Urogenital system	20
7.	Endocrine system	15
8.	Microbiology	20
9.	Parasitology	20
	<b>TOTAL</b>	<b>160</b>

**1<sup>ST</sup> YEAR PAPER-1  
THEORY  
ANATOMY, PHYSIOLOGY, MICROBIOLOGY AND PARASITOLOGY**

<b>I. SKELETAL SYSTEM</b>	20
1.1 Classification of bones and joints	
1.2 Bones of forelimb	
1.3 Bones of hind limb	
1.4 Bones of skull	
1.5 Bones of vertebral column	
1.6 Important joints shoulder, elbow, hock, stifle joint and inter vertebral joint	
<b>2. MUSCULAR AND NERVOUS SYSTEM</b>	15
2.1 Major muscles of mammals and fowl	
2.2 Physiology of muscular system	
2.3 Nervous system in mammals structure and functions of brain, spinal cord and important peripheral nerves	
2.4 Temperature regulation and environmental physiology	
<b>3. DIGESTIVE SYSTEM</b>	20
3.1 Digestive systems of ruminants	
3.2 Physiology of digestion in ruminants	
3.3 Digestive system of non ruminants	
3.4 Physiology of digestion in non ruminants	
3.5 Digestive system of fowl	
3.6 Physiology of digestion in fowl	
<b>4. RESPIRATORY SYSTEM</b>	15
4.1 Respiratory system of mammals sketch diagram	
4.2 Respiratory system in fowl	
4.3 Mechanism of respiration in mammals	
4.4 Mechanism of respiration in fowl	
<b>5. CIRCULATORY SYSTEM</b>	15
5.1 Circulatory system in mammals – heart, important arteries and veins, lymphatic system	
5.2 Blood cellular and chemical constituents of blood – mechanism of blood coagulation	
5.3 Cardiac cycle	
5.4 Physiology of lymphatic system	
<b>6. UROGENITAL SYSTEM</b>	20
6.1 Structure and function of male reproduction system	
6.2 Structure and function of female reproductive system	
6.3 Structure and function of avian reproductive system	
6.4 Structure and function of urinary systems of mammals	
6.5 Structure and function of urinary systems of fowl	
<b>7. ENDOCRINE SYSTEM</b>	15
7.1 Pituitary gland	
7.2 Thyroid	

- 7.3 Pancreas
- 7.4 Adrenal gland
- 7.5 Mammary gland – Structure and secretion of milk – neurohormonal regulation of milk secretion.

## **8. MICROBIOLOGY**

20

- 8.1 Classification of microorganisms
- 8.2 Morphology of bacteria and virus
- 8.3 Factors affecting the growth of microorganisms
- 8.4 Important pathogenic bacteria: TB, Brucellosis, Anthrax, H.S. B.Q. Salmonellosis, E.coli, Clostridium, Leptospirosis, Staphylococcus, Streptococcus, Listeriosis, Mycoplasmosis,
- 8.5 Viral: F&M, Rabies, Pox disease, Blue tongue, influenza, Ranikhet, Marek's, IBD.

## **9. PARASITOLOGY**

20

- 9.1 Trematodes: Fasciola, Schistosomes, amphistomes,
- 9.2 Cestodes: Taenia, Echinococcus, moniezia, poultry tape worm
- 9.3 Nematodes: Ascaris, strongyloides, ankylostomes, filariasis, trichinellosis
- 9.4 Protozoan parasites: Amoebiasis, babesiosis, theileriosis, coccidiosis, trichomoniasis, trypanosomiasis
- 9.5 Ectoparasites: Ticks, mites, myiasis

**1<sup>ST</sup> YEAR PAPER-1  
PRACTICALS  
ANATOMY, PHYSIOLOGY, MICROBIOLOGY AND PARASITOLOGY**

1. Demonstration of bones of forelimb.	5
2. Demonstration of bones of hind limb.	5
3. Demonstration of bones of skull.	5
4. Demonstration of bones of vertebral column.	5
5. Demonstration of different joints.	5
6. Demonstration of major muscles of mammals.	8
7. Demonstration of major muscles of fowl.	5
8. Study of temperature regulation by schematic diagram.	3
9. Sketch diagram and labeling of brain, spinal cord.	3
10. Sketch diagram and labeling of digestive system of ruminants.	3
11. Sketch diagram and labeling of digestive system of non-ruminants	3
12. Sketch diagram and labeling of respiratory system of fowl.	3
13. Sketch diagram and labeling of respiratory system of mammals.	3
14. Sketch diagram of heart of mammals and fowl.	3
15. Observation of normal and abnormal respiration.	3
16. Estimation of blood coagulation time.	3
17. Sketch diagram of lymphatic system.	3
18. Diagram and labeling of male reproductive system.	3
19. Diagram and labeling of female reproductive system.	3
20. Diagram and labeling of avian reproductive system.	3
21. Diagram and labeling of urinary system of mammals.	3
22. Diagram and labeling of urinary system of fowl.	3
23. Sketch diagram, labeling and demonstration of pituitary gland, thyroid, pancreas and adrenal glands.	
6	
24. Structure of mammary gland and labeling.	3
25. Bacterial cell and its components.	3
26. Study of bacterial growth curve.	3
27. Observing the permanent slides of important bacteria.	7
28. Observing the colonies of important bacteria in selective medias.	7
29. Sketch diagram of parasites and eggs of fasciola, schistosomes and amphistomes.	
8	
30. Sketch diagram of parasites and eggs of taenia, echinococcus and monezia	
8	
31. Sketch diagrams of parasites of ascaria, strongyloides, ankylostomes and filaria.	
8	
32. Life cycles of fasciola, schistosomes, amphistomes, taenia, monizia, ascaria, babesia, strongyloides, ankylostomes, filaria.	8
33. Observation of slides of amebia, babesia, theilaria, coccidiosis, trypanosomes.	
6	
34. Sketch diagrams of ticks and mites.	4
35. Observation of slide of ticks and mites.	3

**Total** **160**

**1<sup>st</sup> YEAR PAPER II  
THEORY  
RUMINANT ANIMAL PRODUCTION & MANAGEMENT**

<b>Sl.No.</b>	<b>Name of the Chapter</b>	<b>No. of Periods</b>
1.	Introduction – Conformation points of large and small ruminants	10
2.	Breeds of Dairy cattle, Buffaloes, Sheep and Goats	20
3.	Housing, Hygiene and Sanitation of livestock farms	15
4.	Selection and Breeding of ruminant livestock	10
5.	Feeding of ruminants	25
6.	Activities in livestock farms	35
7.	Lactation, Quality control and Marketing of Dairy products and live animals	25
8.	Economics of ruminant livestock farms, AH Developmental Programmes and Livestock Insurance	20
	<b>Total</b>	<b>160</b>

**1<sup>st</sup> YEAR PAPER II  
THEORY  
RUMINANT ANIMAL PRODUCTION & MANAGEMENT**

<b>1.</b>	<b>Introduction – Conformation points of large and small ruminants</b>	<b>10</b>
1.1	Common terminology used in livestock management	
1.2	Livestock statistics	
1.3	Role of livestock farming in Indian economy	
1.4	Conformation points of Cattle, Buffalo, Sheep and Goats	
<b>2.</b>	<b>Breeds of Dairy Cattle, Buffaloes, Sheep and Goats</b>	<b>20</b>
2.1	Breed definition - Classification of ruminant livestock breeds	
2.2	Identification of Indian and exotic breeds and their productivity	
<b>3.</b>	<b>Housing, Hygiene and Sanitation of livestock farms</b>	<b>15</b>
3.1	Selection of site for livestock farms	
3.2	Housing Systems for different age groups of livestock	
3.3	Layout, Space, water, ventilation and light requirements	
3.4	Hygiene and Sanitation in animal houses -Cleaning and fumigation of stores	
3.5	Biogas plant – Types, design and uses	
3.6	Preparation of Vermi-culture from compost	
<b>4.</b>	<b>Selection and Breeding of ruminant livestock</b>	<b>10</b>
4.1	Selection and Culling of Cattle, Buffaloes, Sheep and Goats	
4.2	Breeding definition - Systems of Breeding	
4.3	State and National breeding policies	
<b>5.</b>	<b>Feeding of ruminants</b>	<b>25</b>
5.1	Feeding definition - Common feeds and fodders	
5.2	Formulation of rations	
5.3	Feeding of different age groups	
5.4	Feeding of livestock under Drought conditions	
5.5	Urea treatment of paddy-straw and use of UMMB	
5.6	Feed plant- feed mixing and machinery used for feed preparation	
5.7	Quality control of feeds - Collection and Processing of samples for feed analysis	
5.8	Use of pesticides in feeds to control biological agents	
5.9	Importance of natural grass lands, Control grazing	
5.10	Cultivation practices of Leguminous and Non-leguminous fodders	
5.11	Fodder trees- Silvi-pasture - Horti-pastures	
5.12	Chaffing of fodders	
5.13	Fodder conservation- Hay preparation and Silage making	

<b>6.</b>	<b>Activities in livestock farms</b>	<b>35</b>
6.1	Daily farm routine of livestock farms	
6.2	Restraint of livestock	
6.3	Casting of livestock – methods	
6.4	Identification of livestock – methods	
6.5	Care and management of different age groups of livestock	
6.6	Weaning of ruminant animals	
6.7	Castration, Docking, Disbudding, Hoof trimming of livestock	
6.8	Shearing, Clipping, Dipping, Spraying and Deworming of livestock	
6.9	Management of animals while transportation	
6.10	Livestock farm records	
<b>7.</b>	<b>Lactation, Quality control and Marketing of Dairy products and live animals</b>	<b>25</b>
7.1	Importance of milk as human food	
7.2	Physico-chemical properties –Milk Composition	
7.3	Milking of dairy animals – methods	
7.4	Clean milk production - Importance	
7.5	Procurement, Pricing policy, Transport, Storage and Distribution of milk	
7.6	Common platform tests	
7.7	Detection of Adulterants and preservatives in milk	
7.8	Cream separation – Important Dairy products(Ghee, Butter, Paneer & Khoa) - Value addition	
7.9	Marketing of dairy cattle, milk and milk products	
<b>8.</b>	<b>Economics of ruminant livestock farms, AH Developmental Programmes and Livestock Insurance</b>	<b>20</b>
8.1	Economics of Dairy farming (Cattle and Buffaloes)	
8.2	Economics of Sheep and Goat farms	
8.3	Project reports for small sized livestock farms	
8.4	Role of Dairy cooperatives, Sheep and goat cooperative societies	
8.5	AH developmental programmes for upliftment of rural farmers	
8.6	Livestock Insurance – Economic implications	

**1<sup>st</sup> YEAR PAPER II  
PRACTICALS  
RUMINANT ANIMAL PRODUCTION & MANAGEMENT**

1. Familiarization with Conformation points of Cattle, Buffalo, Sheep and Goat	3
2. Identification of Indian and Exotic breeds of Cattle, Buffalo, Sheep and Goat	5
3. Approach and Handling of Cattle and Buffaloes	3
4. Approach and Handling of Sheep and Goats	3
5. Methods of Restraint of ruminants	6
6. Methods of Casting of livestock	3
7. Methods of Identification of livestock	6
8. Housing Systems and lay out for different age groups of Cattle and Buffaloes	4
9. Housing and lay out for different age groups of Sheep and Goats	4
10. Floor Space requirement for different age group of animals	2
11. Selection of Cattle and Buffaloes by Score card methods	3
12. Selection of Sheep and Goats by Score card methods	3
13. Culling of ruminant livestock	2
14. Feeding of Colostrum to new born animals	3
15. Identification of important feeds and fodders	4
16. Formulation of rations for Cattle and Buffaloes	4
17. Formulation of rations for Sheep and Goats	4
18. Feed mixing	2
19. Demonstration of Hay preparation	2
20. Demonstration of Silage making.	3
21. Urea treatment of paddy straw	2
22. Collection and processing of samples for feed analysis	3
23. Weaning of ruminant animals	3
24. Castration, Docking, Disbudding, Hoof trimming of livestock	3
25. Shearing and Clipping	2
26. Dipping and Spraying	3
27. Deworming of livestock	4
28. Management of animals while transportation	3
29. Care and management of new born animals	4
30. Care and management of Growing animals	2
31. Care and management of Dry and Pregnant animals	3
32. Care and management of milch animals	4
33. Care and management of breeding males	4
34. Various farm records and maintenance of stock and stores	3

35. Preparation of Vermi-culture from compost	3
36. Hygiene and Sanitation in animal houses -Cleaning and fumigation of stores	3
37. Biogas plant – Types, design and uses	4
38. Methods of milking	3
39. Hand and machine milking	3
40. Sampling of milk, Analysis of important constituents of milk	2
41. Common platform tests, Detection of adulterants and Preservatives	4
42. Cream separation	4
43. Visit to Dairy farms- Demonstration of various managerial practices.	5
44. Visit to Sheep and Goats farms - Demonstration of various managerial practices	4
45. Visit to Milk processing and product plant	3
46. Visit to Slaughter houses / Abattoirs	2
47. Preparation of Project reports for 5, 10 animal Dairy units	2
48. Preparation of Project reports for 50, 100 animal Sheep and Goat units	2
49. Procedure for claiming livestock insurance benefits	2
50. Study of Daily farm routine of livestock farms	2

**1ST YEAR PAPER – III  
THEORY**

**LABORATORY TECHNIQUES AND PHARMACOLOGY**

<b>SL.NO</b>	<b>NAME OF THE CHAPTER</b>	<b>NO. OF PERIODS</b>
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1.	Laboratory equipment	30
2.	Preparations	30
3.	Laboratory techniques	50
4.	Radiology	15
5.	Pharmacology	35
	<b>TOTAL</b>	<b>160</b>

**1ST YEAR PAPER – III  
THEORY**

**LABORATORY TECHNIQUES AND PHARMACOLOGY**

**I. LAB EQUIPMENT** 30

- 1.1 Microscope
- 1.2 Hot air oven
- 1.3 Bacteriological incubator
- 1.4 BOD incubator
- 1.5 Autoclave
- 1.6 Centrifuge
- 1.7 ELISA tester and reader
- 1.8 Spectrophotometer
- 1.9 PCR equipment
- 1.10 Water bath
- 1.11 pH meter
- 1.12 Electrophoresis apparatus
- 1.13 Blood analyser
- 1.14 Haemocytometer
- 1.15 Digital haemoglobinometer
- 1.16 Microtome
- 1.17 Colony counter

**2. PREPARATIONS:** 30

- 2.1 Methods of sterilization of glassware
- 2.2 Preparation of common microbiological culture medias
- 2.3 Preparation of stains
- 2.4 Preparation of laboratory reagents
- 2.5 Preparation of different anticoagulant solutions
- 2.6 Collection, preservation and dispatch of samples
  - 2.6.1 Blood
  - 2.6.2 Faeces
  - 2.6.3 Urine
  - 2.6.4 Sputum
  - 2.6.5 Skin scrapings
  - 2.6.6 Vaginal discharges
  - 2.6.7 Different organs at PM
  - 2.6.8 Milk
  - 2.6.9 Meat
  - 2.6.10 Water

**3. LAB TECHNIQUES:** 50

- 3.1 Different staining procedures
  - 3.1.1 Gram's staining
  - 3.1.2 Spore staining
  - 3.1.3 Capsular staining
  - 3.1.4 Zeihl Nelson's staining
  - 3.1.5 Negative staining
  - 3.1.6 Flagellar staining
  - 3.1.7 Wrights staining
  - 3.1.8 Fluorescent staining

3.1.9	Leishman staining	
3.1.10	Giemsa staining	
3.2	Inoculation, isolation and identification of different micro-organisms	
3.3	Processing of samples for parasitological examination	
3.4	Identification of parasitic ova and parasites	
3.5	Preparation of permanent slides & museum specimens	
3.6	Examination of urine – Physical examination, sugar, bile pigment, bile salts, protein, blood ketone bodies, microscopic sediment of urine for RBC, WBC, crystals, casts, parasites	
3.7	Examination of blood – RBC count, WBC, DLC, ESR, PCV, HB	
3.8	Examination of milk for mastitis, adulterants & preservatives,	
3.9	Examination of sputum	
3.10	Examination of skin scrapings	
3.11	ELISA Test	
3.12	Antigens & antibodies – sero diagnostic techniques	
3.13	Antibiotic sensitivity test	
3.14	Tissue section cutting for histopathological examination	
3.15	Staining & examination of tissue sections.	
<b>4.</b>	<b>RADIOLOGY:</b>	<b>15</b>
1.1	Properties of X-rays & uses	
1.2	Exposure and development of X-rays film	
<b>5.</b>	<b>PHARMACOLOGY:</b>	<b>35</b>
5.1	Drugs dosage forms	
5.2	Prescription reading.	
5.3	Routes of drug administration	
5.4	Common ointments –	
5.4.1	Iodine ointment	
5.4.2	ZnO Ointment	
5.4.3	Boric acid Ointment	
5.4.4	Sulphur Ointment	
5.4.5	Antibiotic Ointment	
5.5	Carminatives & antacids	
5.6	Analgesics antipyretics sedatives, anticonvulsants	
5.7	Local, epidural and general anesthetics	
5.8	Antihistaminic, common antibiotics, antifungal agents and disinfectants	
5.9	Anthelmintic, antiprotozoal and ectoparasitocidal drugs.	

**1ST YEAR PAPER – III  
PRACTICALS  
LABORATORY TECHNIQUES AND PHARMACOLOGY**

1. Operations and Maintenance of	27
a) Microscope	
b) Hot air oven	
c) Bacteriological incubator	
d) BOD incubator	
e) Autoclave	
f) Centrifuge	
g) ELISA tester and reader	
h) Spectrophotometer	
i) PCR equipment	
j) Water bath	
k) pH meter	
l) Electrophoresis apparatus	
m) Blood analyser	
n) Haemocytometer	
o) Digital haemoglobinometer	
p) Microtome	
q) Colony counter	
2. Sterilization of glassware.	4
3. Preparation of different microbial culture medias.	5
4. Preparation of different staining solutions.	4
5. Preparation of different laboratory reagents.	6
6. Preparation of different anticoagulant solutions.	8
7. Collection, preservation and dispatch of samples	10
a) Faeces	
b) Urine	
c) Blood	
d) Sputum	
e) Milk	
f) Water.	
g) Skin scrapings.	
h) Nasal washings	
i) Organs collected at postmortem examination	
8. Preparation and staining of blood smears.	15
a. Gram's staining	
b. Spore staining	
c. Capsular staining	
d. Zeihl Nelson's staining	
e. Negative staining	
f. Flagellar staining	
g. Writes staining	
h. Fluorescent staining	
i. Leishman staining	
j. Giemsa staining	
9. Inoculation and isolation of different micro-organisms	15
10. Identification of different micro-organisms.	8
11. Processing of dung sample for parasitological exam	2
12. Processing of skin scrapings for parasitological exam	2
13. Processing of nasal washings for parasitological exam	2
14. Identification of parasitic ova and parasites.	2

15. Preparation of permanent slides.	4
16. Preparation of museum specimens.	4
17. Examination of urine-physical examination, protein, blood sugar, bile pigments, bile salts, ketoneodies, microscopic sediment of urine for R.B.C, W.B.C, crystals, casts, parasites.	10
18. Examination of blood for total erythrocyte count, WBC,DLC, ESR. PCV, Hb.	5
19. Examination of milk	3
a. Physical examination of milk.	
b. Chemical examination of milk.	
c. Microbiological examination of milk	
20. Procedure for conducting ELISA test.	3
21. Sero diagnostic techniques- Haemagglutination test, HI test, serial dilution Techniques.	3
22. Conducting ABST test using body fluids.	2
23. Procedure for tissue section cutting for histo-pathological exam.	2
24. Staining of tissue sections.	2
25. Operation and maintenance of X-ray plant.	4
26. Exposure and development of X –ray films.	2
27 Preparation of ointments/ mixtures.	2
28. Operation and maintenance of laboratory equipment like animal blood counter, biochemical analyzer etc.	4
<b>Total</b>	<b>160</b>

**2<sup>nd</sup> YEAR PAPER - I**  
**THEORY**  
**NON - RUMINANT ANIMAL PRODUCTION & MANAGEMENT**

<b>Sl.No.</b>	<b>Name of the Chapter</b>	<b>No. of Periods</b>
1.	Introduction – Conformation points and Common breed Characteristics of Pet animals, Swine, Rabbit and Poultry	20
2.	Zoo animals- Care, Management and health cover	10
3.	Housing, Selection, Breeding and Feeding, Care and Management of animals of different age groups	40
4.	Activities in livestock and Poultry farms	40
5.	Hatchery management	20
6.	Methods of slaughter, Principles of meat preservation and Effluent disposal	10
7.	Economics of Poultry and Swine farming Marketing of Eggs, Chicken, Pork and live animals	20
	<b>Total</b>	<b>160</b>

**2<sup>nd</sup> YEAR PAPER - I**  
**THEORY**  
**NON - RUMINANT ANIMAL PRODUCTION & MANAGEMENT**

- |   |           |
|---|-----------|
| <b>1. Introduction – Conformation points and Common Breed Characteristics of Pet animals, Swine, Rabbit and Poultry</b> | <b>20</b> |
| 1.1 Common terminology used in livestock management   |           |
| 1.2 Recent statistics   |           |
| 1.3 Role of Poultry in Indian economy   |           |
| 1.4 Conformation points of Dog, Cat, Swine, Rabbit and Poultry  |           |
| 1.5 Identification and Classification of Indian and exotic breeds and their productivity                                |           |
| <b>2. Zoo animals- Care, Management and health cover</b>  | <b>10</b> |
| 2.1 Introduction to zoo animals   |           |
| 2.2 Importance of zoo animals   |           |
| 2.3 Care, Management and health cover of zoo animals  |           |
| <b>3. Housing, Selection, Breeding and Feeding, Care and Management of different age groups</b>                         | <b>40</b> |
| 3.1 Housing Systems for Pet animals, Swine, Rabbit and Poultry  |           |
| 3.2 Layout, Space, water, ventilation and light requirements  |           |
| 3.3 Selection and Culling   |           |
| 3.4 Breeding Systems  |           |
| 3.5 Feeding of Pet animals, Swine, Rabbit and Poultry   |           |
| 3.6 Formulation of rations- Feeding of different age groups   |           |
| 3.7 Feed supplements and Additives for poultry  |           |
| 3.8 Feed plant- feed mixing and machinery used for poultry feed preparation   |           |
| <b>4. Activities in livestock and Poultry farms</b>   | <b>40</b> |
| 4.1 Daily farm routine of Swine and Poultry farms   |           |
| 4.2 Handling and Restraint Pet animals, Swine, Rabbit and Poultry   |           |
| 4.3 Identification methods  |           |
| 4.4 Care and management of different age groups of animals  |           |
| 4.5 Care and management of layers and broilers in poultry farms   |           |
| 4.6 Weaning of young ones   |           |
| 4.7 Poultry farm equipment, Sanitation and disinfection of poultry cages  |           |
| 4.8 Litter management in poultry farms  |           |
| 4.9 Whelping and Grooming of Dogs   |           |
| 4.10 Management of animals while transportation   |           |
| 4.11 Livestock farm records   |           |
| 4.12 Stray animals – Effect on environment –Eradication methods   |           |

<b>5.</b>	<b>Hatchery management</b>	<b>15</b>
5.1	Lay out of a hatchery	
5.2	Incubators, Setters and Hatchery- Cleaning and Disinfection	
5.3	Hatching eggs – Collection, Selection, Storage and Fumigation	
<b>6.</b>	<b>Methods of slaughter, Principles of meat preservation and Effluent disposal</b>	<b>15</b>
6.1	Ante-mortem and Post-mortem examination of food animals	
6.2	Methods of slaughter of food animals	
6.3	Principles of meat preservation	
6.4	Important Meat products – Value addition	
6.5	Effluent disposal from livestock farms and industries	
<b>7.</b>	<b>Economics of Poultry and Swine farming Marketing of Eggs, Chicken, Pork and live animals</b>	<b>20</b>
7.1	Economics of Poultry farming	
7.2	Economics of Swine farming	
7.3	Project reports for small sized Poultry and Swine farms	
7.4	Marketing of Eggs, Chicken, Pork and live animals	

**2<sup>nd</sup> YEAR PAPER I  
PRACTICALS**

**NON - RUMINANT ANIMAL PRODUCTION & MANAGEMENT**

1. Familiarization with Conformation points of Dogs and Cats	2
2. Familiarization with Conformation points of Swine, Rabbit and Poultry	3
3. Identification of Indian and exotic breeds of Dog, Cat, Swine, Rabbit and Poultry	5
4. Approach and Handling of Pet animals and Swine	3
5. Methods of Handling of Rabbit and Poultry	3
6. Methods of Restraint for Pet animals, Swine, Rabbit and Poultry	3
7. Methods of Identification of Pet animals, Swine, Rabbit and Poultry	3
8. Housing Systems and lay out for different age groups of livestock and Poultry	5
9. Floor Space requirement for different age group of animals and poultry	5
10. Care, management and health cover of zoo animals	3
11. Formulation of rations for various species	5
12. Feed supplements and Additives for poultry	3
13. Feed plant- feed mixing and machinery used for poultry feed preparation	4
14. Whelping and Grooming of Dogs	3
15. Vaccination schedule, Deworming of Pet animals	2
16. Control of ecto-parasites in pet animals	2
17. Management of animals while transportation	2
18. Care and management of New born animals	2
19. Care and management of Growing animals	2
20. Care and management of Pregnant animals	3
21. Care and management of Nursing animals	3
22. Care and management of breeding males	3
23. Weaning of young ones	3
24. Poultry farm equipment, Sanitation and disinfection of poultry cages	5
25. Litter management in poultry farms	3
26. Visit to Swine and Rabbit farms – Demonstration of various managerial practices	5
27. Visit to Poultry farms- Demonstration of various managerial practices	6
28. Visit to Zoo parks	5
29. Visit to Kennels	5
30. Visit to Dog shows	5
31. Poultry farm records and maintenance of stock and stores	3
32. Lay out of a hatchery	3
33. Incubators, Setters and Hatchery, Cleaning and disinfection	3
34. Hatching of eggs, Collection, Selection, Storage and Fumigation	3
35. Hygiene and Sanitation in animal houses	5
36. Ante-mortem and Post-mortem examination of food animals	3
37. Methods of slaughter of food animals	5
38. Principles of meat preservation	3
39. Meat products - Value Addition	3
40. Effluent disposal from livestock farms and industries	4
41. Preparation of Project reports for 5, 10 Swine animal units	5
42. Preparation of Project reports for 5000, 10000 animal Poultry units	5
43. Daily farm routine of Swine, Rabbit and Poultry farms	6
44. Stray animals and their management	3

**II YEAR ( PAPER – II)**  
**THEORY**  
**COMMON LIVESTOCK DISEASES AND THEIR PREVENTION**

<b>S.No.</b>	<b>Name of the chapter</b>	<b>No. of periods</b>
1.	Health	02
2.	First Aid	03
3.	Bacterial diseases	20
4.	Viral diseases	20
5.	Protozoan diseases	15
6.	Ecto and Endo parasitic diseases	15
7.	Mycotic diseases	05
8.	Production diseases	15
9.	Rumen dysfunctions	10
10.	Zoonotic diseases	20
11.	Diseases of new born	15
12.	Principles of disease control and prevention	20
	<b>Total</b>	<b>160</b>

**II YEAR ( PAPER – II)**  
**THEORY**  
**COMMON LIVESTOCK DISEASES AND THEIR PREVENTION**

<b>1. Health</b>	02
1.1. Definition of health and disease	
1.2. Signs of health	
<b>2. First aid</b>	03
2.1. Definition of first aid and its principles	
2.2. First aid kit	
2.3. Attending to common emergencies	
<b>3. Bacterial diseases</b>	20
3.1. Classification of diseases of livestock-Bacterial, viral, protozoal, ecto-parasitic, endo parasitic production, Zoonotic etc.	
3.2. Anthrax	
3.3. Black Quarter	
3.4. Brucellosis	
3.5. Haemorrhagic septicaemia	
3.6. Tuberculosis	
3.7. Johne's disease	
3.8. Leptospirosis	
3.9. Listeriosis	
3.10. Tetanus	
3.11. Colibacillosis	
3.12. Contagious bovine Pleuro pneumonia	
3.13. Contagious caprine pleuro pneumonia	
3.14. Enterotoxemia	
3.15. Mastitis	
3.16. Pneumonia	
<b>4. Viral diseases</b>	20
4.1. Foot and Mouth disease	
4.2. Rabies	
4.3. Bluetongue	
4.4. Pestis petitis de ruminants (PPR)	
4.5. Contagious Ecthyma	
4.6. Pox diseases: Buffalo pox, cow pox, sheep pox, goat pox, fowl pox	
4.7. Hog cholera	
4.8. Ranikhet disease	
<b>5. Protozoan diseases</b>	15
5.1. Anaplasmosis	
5.2. Babesiosis	
5.3. Theileriosis	
5.4. Trypanosomiasis	
5.5. Leishmaniasis	
5.6. Coccidiosis	
<b>6. Ecto and endo parasitic diseases</b>	15
6.1. Flies	
6.2. Ticks and Mites	
6.3. Round worms	
6.4. Tape worms	
6.5. Liver flukes	
6.6. Stomach flukes	
6.7. Nasal schistosomiasis	

<b>7. Mycotic diseases</b>	<b>05</b>
7.1. Ring worm	
7.2. Aspergillosis	
<b>8. Production diseases</b>	<b>15</b>
8.1. Milk fever	
8.2. Ketosis	
8.3. Pregnancy toxaemia	
<b>9. Rumen dysfunctions</b>	<b>10</b>
9.1. Bloat	
9.2. Acid indigestion	
9.3. Alkaline indigestion	
<b>10. Zoonotic diseases</b>	<b>20</b>
10.1. Viral zoonoses- Rabies, Japanese Encephalitis	
10.2. Bacterial zoonoses – TB, Brucellosis, Salmonellosis, Leptospirosis	
10.3. Parasitic Zoonoses-Hydatidosis, Amaebiosis	
<b>11. Diseases of new born</b>	<b>15</b>
11.1 Calf scours	
11.2 Calf septicaemia	
11.3. Ascariasis	
11.4 Pneumonia	
11.5. Hypoglycaemia and Hypothermia	
11.6. Piglet Anaemia	
<b>12. Principles of Disease control and prevention</b>	<b>20</b>
12.1. Isolation of sick animals	
12.2. Disinfection of premises	
12.3. Immediate treatment of sick animals	
12.4. Quarantine	
12.5. Hygienic disposal of dead animals	
12.6. Regular vaccination	

**II YEAR ( PAPER – II)****PR ACTICALS****COMMON LIVESTOCK DISEASES AND THEIR PREVENTION**

1. Recording Body temperature, pulse and respiration	10
2. Identification of sick animals	05
3. Study of first aid kits	02
4. Maintenance of first aid kits	03
5. Vaccination schedules for livestock, pet animals and poultry	05
6. Deworming schedules for livestock, pet animals and poultry	05
7. Screening of animals for diseases –Mastitis, Tuberculosis, Johnes disease, Brucellosis	10
8. Collection of rumen liquor	05
9. Rumen liquor analysis	15
10. Examination of urine for calcium and ketone bodies	05
11. Common drugs used in Dispensary	05
12. Identification and usage of common chemicals that are used in clinic	05
13. Preparation of ointments	10
14. Preparation of tonics/ Mixtures	10
15. Various fluids used in rehydration therapy	05
16. Collection and dispatch of materials in various diseases conditions	20
17. Examination of milk for detecting Mastitis – Strip cup test, CMT (California Mastitis test)	20
18. Attending to Veterinary Hospitals for observing and recording signs exhibited by animals in various disease conditions	50

**Total:**  
**160**

**II YEAR PAPER III  
THEORY**

**ANIMAL REPRODUCTION, HOSPITAL MANAGEMENT AND SURGICAL NURSING  
CARE**

<b>S.No.</b>	<b>Name of the Chapter</b>	<b>No. of Periods</b>
1.	Female Reproduction	40
2.	Artificial Insemination & Frozen semen Technology	30
3.	Hospital Management	60
4.	Surgical Nursing Care	30
	<b>TOTAL:</b>	<b>160</b>

**II YEAR PAPER III  
THEORY**

**ANIMAL REPRODUCTION, HOSPITAL MANAGEMENT AND SURGICAL NURSING  
CARE**

- 1. Female Reproduction:** 40
- 1.1. Estrus cycle in livestock
  - 1.2. Signs of heat
  - 1.3. Detection of heat
  - 1.4. Gestation
  - 1.5. Gestation period in livestock
  - 1.6. Parturition
  - 1.7. Stages of parturition
  - 1.8. Anaestrus
  - 1.9. Dystocia
  - 1.10. Retained Placenta
  - 1.11. Pre partum prolapse of vagina
  - 1.12. Post partum prolapse of uterus
  - 1.13. Endometritis
  - 1.14. Pyometra
  - 1.15. Infertility – Causes and prevention
  - 1.16. Synchronisation of heat
  - 1.17. Concept of MOET ( Multiple Ovulation and Embryo Transfer)
- 2. Artificial Insemination and Frozen semen Technology** 30
- 2.1. Advantages of AI
  - 2.2. Equipment required in AI
  - 2.3. Semen collection, processing and evaluation
  - 2.4. Preservation of frozen semen
  - 2.5. Insemination Techniques
  - 2.6. Liquid Nitrogen containers
  - 2.7. Precautions for successful AI

- 3. Hospital Management** 60
- 3.1. Registration of cases
  - 3.2. History Taking
  - 3.3. Observation and recording of disease signs
  - 3.4. Collection and dispatch of clinical specimens –Urine, blood, skin scrapings etc.
  - 3.5. Maintenance of Hospital records
  - 3.6. Maintenance of Out patient and In patient wards
  - 3.7. Care and Management of Inpatient animals
  - 3.8. Different methods of drug administration – oral, intra muscular, intra venous, sub cutaneous etc.
  - 3.9. Sterilization of syringes and needles
  - 3.10. Disinfection of Operation Theatre
- 4. Surgical Nursing Care** 30
- 4.1. Sterilization Techniques
  - 4.2. Preoperative preparation of animals
  - 4.3. Post operative care
  - 4.4. Wound dressing
  - 4.5. Dressing materials
  - 4.6. First Aid in haemorrhage and fracture

**ANIMAL REPRODUCTION, HOSPITAL MANAGEMENT AND SURGICAL NURSING  
CARE**

1. Obstetrical Instruments	03
2. Sterilization of Equipment	02
3. Palpation of Reproductive organs collected from slaughter house	05
4. Pregnancy diagnosis	10
5. Semen morphology	05
6. Preparation of artificial vagina	05
7. Collection of semen from different livestock species	05
8. Cleaning and sterilization of AI equipment	05
9. Handling of Liquid Nitrogen containers	05
10. Thawing of semen straw	05
11. Practicing AI	10
12. Maintenance of AI related Registers	05
13. Practicing all routes of drug administration	10
14. Casting and restraint of animals at the hospital	05
15. Identification of surgical Instruments	05
16. Dressing of wounds	10
17. Preparation of surgical packing of large and small animals	05
18. Closed method of castration	05
19. Assisting in major operations like Dystocia, Laparotomy etc	05
20. Extending First Aid in all emergencies ( poisoning, Trauma, Fracture etc.)	05
21. Attending to Veterinary hospitals and exposure to daily routine of hospitals	05
22. Hands on training in	25
a. Registration of cases	
b. History taking	
c. Observation and recording of clinical cases	
d. Collection and dispatch of specimens in various diseases, urine, blood, skin scrapings etc	
e. Writing of hospital records	
23. Attending to out patient and In patient wards	15
<b>TOTAL:</b>	<b>160</b>

## VII. LIST OF EQUIPMENT

### A. EQUIPMENT

1	Haemocytometers	6
2	Mono cular Microscopes	10
3	Trinocular microscope –Olympus (KH-TR model)	1
4	Photo micrography (Hachamind Olympus) SLR & 35 mm SLR camera back model Sc -35-1.	1
5	Heat plate with 3 heat switches (Guna)	1
6	Water bath with thermostat control (Guna)	1
7	Castrator Small animals	4
8	Castrator Large animals	2
9	Wire saw with handles	1set
10	Artery forceps 8& 12 inches	12 each
11	Curved blunt edge scissors 12 inches	4
12	Straight blunt edge Scissors 12 inches	4
13	Straight sharp edge scissors 12 inches	4
14	Curved sharp edge scissors 12 inches	4
15	Thumb forceps 12 inches	12
16	Rat toothed forceps 12 inches	4
17	Needle holding forceps	2
18	Bone cutter	1
19	Stainless steal Hammer (1-2 pounds weight )	1
20	Stainless steal chisel	1
18	Vaginal speculum cattle	2
19	Vaginal speculum sheep	2
21	Trocar & canula stainless steel (S.s.) sheep and cattle	2 each
22	B.P. Handle No.3&4	4 each
23	B.P. Blades No. 20, 23 &11	100each
24	Surgical instrument sterilizing drums	2
25	A.I. Gun 0.5ml &0.25ml size	2each
26	Liquid Nitrogen container 10 liters	1
27	A.I. sheaths (100 no. packs)	5
28	Disposable Gloves Full hand size Vety. Gynaecology use	100X2
29	Gum shoos No 10 size	3 pairs
31	Gynaecology aprons	4
32	Doctors white aprons	3
33	Surgical apron green	2
34	Casting rope cotton	3
35	Buckets iron	4
36	Plastic mugs	4
37	Hand washing dish with stand	1
38	Enima can with plastic pipe	1
39	Stomach tube	1
40	Mouth gag	1
41	Plastic trays 30X20CM	6
42	Small animal examination table	1
43	Surgical table	1
44	Surgical suturing needles Curved traumatic & a traumatic	4 dozens each
45	Compound microscope	1
46	Gerbers centrifuge	1
47	Hot air oven 35”X35”X35”	1
48	Digital PH meter	1
49	Chemical balance with weights	4
50	Electronic mono pan balance (Top pan balance) 300gm	1

	(Resolution 0.01gm)	
51	Autoclave vertical (electrically operated ) 30 litres capacity	1
52	Micro pipettes fixed & Adjustable volume 500 micro litres	1 each
53	Bacteriological incubator 35”X35”X35”	1
54	Digital calorimeter with 8 filters (Dgisum model DI -797)	1
55	Chemical storage rack	1
56	Hand centrifuge	6
57	Micro centrifuge	1
58	Micro haematocrit centrifuge	1
59	Electrical operated centrifuge (table top)	1
60	Trevis	1
61	Refrigerator	1
62	Water distillation apparatus	1
63	Sediment testing equipment	1
64	Butter churn	1
65	Butter worker	1
66	Cream separator	1
67	Blendor / mixer	1
68	First aid kit	1
69	Probing tube	1
70	Irrigator	1
71	Milk feeding cup	2
72	Strip cup	2
73	Chaff cutter	1
74	Grinder	1
75	Measuring tape	1
76	Electrical de beaker	2
77	Electrical dehorner	2
78	Obstetrical hook	1 set
79	Detorsion rod	1
80	Obstetrical chain	4
81	Kry scottlers obstetrical hook	1
82	Surgical cat gut no. 3	10
83	Surgical nylon no.3	10 rolls
84	Surgical black silk threads no.3	10 rolls
85	Poultry brooding equipment	1
86	Automatic poultry vaccination syringe	4
87	Tattooing set with letters A-Z, 1-9	2
88	Drenching bamboo	2

#### B. GLASSWARE

1	Measuring cylinders Nylon .5lt, 1lt	12 each
2	Beakers 250ml, 500ml,1000ml	12 each
3	Reagent bottles	24
4	Petri dishes Big , Small	30 each
5	Watch glass	12
6	Test tubes with rim 10cmX125mm	50
7	Test tubes with rim 10cmX125mm	50
8	Test tubes with rim 10cmX125mm	50
9	Test tubes rimless 10cmX125mm	50
10	Test tubes rimless 10cmX125mm	50
11	Test tubes rimless 10cmX125mm	50
12	Glass slides	10 boxes
13	Cover slips	12 boxes
14	Flat bottom flask Big	12
15	Flat bottom flask small	12

16	Round bottom flask Big	12
17	Round bottom flask small	12
18	Pipettes volumetric 5ml,15ml , 20ml	10 each
19	Pipettes serological 1ml,2ml,3ml, 5ml,10ml	10each
20	Museum jar different size	50
21	Volumetric flasks 50ml,100ml, 250ml, 500ml	6 each
22	Funnel glass	6
23	Burette 50ml& 100ml	12&6
24	Separating funnel	6
25	Kjeldol flask	3
26	Gerbers pipette (10.75 ml)	12
27	Centrifuge test tube nylon plane (Tarsons)	25
28	Centrifuge test tube nylon graduated (Tarsons)	25
29	Test tube stands different size	24
30	Conical flasks 50ml, 100ml, 250ml, 500ml	12 each
31	Motor and pestle	6 No
32	Filter papers No.40 &No.41	6 boxes each
33	Ointment Plates (Ceramic)	6
34	Spatula	6
35	Spirit lamp	6
36	LPG gas Cylinder connection with stove	1
37	Bunsen Burners	6
38	Tripod stand with mesh	6
39	Wintrobe tube	6
40	Crucible	12
41	ESR stand	20
42	Test tube brushes Nylon	4
43	Lactometer	4
44	Urine meter	3
45	ESR tubes (western green pipettes)	8
46	Hb meter pipettes	6
47	RBC pipette with connecting tubes	6
48	WBC pipette with connecting tubes	6
49	Inoculation loops	6
50	Rubber bulbs different size	12
51	Glass rods	12
52	Dispovan syringes 2ml,5ml,10ml	100 each
53	Truncate	1
54	Clinical Thermo meter	12
55	Titrate plate (HA plates)	4
56	Culture tubes	20
57	Aluminum foils	4 rolls
58	Glass beads	1 pkt
59	Semen collection vials	2
60	Automatic tilt measure for acid	3
61	Automatic tilt measure for amyl alcohol	3
62	Drop bottles	1 dozen
63	Gloves	100
64	Glass marking pencils	2 boxes
65	Gum boots	2 paris
66	Glass tubing	1 kg
67	Glass rods	1 kg

### C. CHEMICALS

1	Gentian violet 125 ml	12
2	Giemsa Stain 125 ml	12

3	Methyl Violet 125 ml	12
4	Methyl Orange 125 ml	12
5	Eosine	12
6	Methylene blue	12
7	Carbol fuschine	12
8	Lactophenol cotton blue 500ml	2
9	Phenophthalene 125ml	4
10	Newmans Stian 100ml	4
11	Grams Iodine 100ml	6
12	Methyl red 125ml	6
13	Hamatoxiline stain 100ml	6
14	Crystal violet 125ml	6
15	Leishman stain solution 250ml	12
16	Sudan III 25gm	1
17	Basic Fuschin 125ml	3
18	Agarose 10 gm	1
19	PH indicator paper all ranges	2 boxes each
20	Labolene solution 5Lt.	2
21	EMB Agar 100gm	1
22	Nutrient agar 100gm	5
23	Nutrient broth 100gm	5
24	Mc Conkey Agar 100gm	1
25	Sabrats agar 500gm	1
26	Distilled water	5Lt.
27	Absorbent cotton 500gm	5
28	Ammonium oxalate 500gm	2
29	EDTA 500gm	1
30	Eosine staining solution 125ml	10
31	Formaldehyde solution	5Lt.
32	RBC diluting fluid 500ml	4
33	HCl 500ml	2
34	N/10 HCl 500ml	2
35	Methanol	1Lt.
36	Nitric acid 500ml	4
37	Pottasium Iodide 250gm	1
38	Sodium chloride 500gm	4
39	Sodium hydroxide 500gm	4
40	Disodium hydrogen orthophosphate 500gm	1
41	Sodium hydrogen phosphate 500gm	1
42	Potassium dihydrogen orthophosphate 500gm	1
43	Potassium permanganate 500gm	4
44	WBC Diluting fluid 500ml	4
45	Sulphuric acid 500ml	4
46	Benedicts solution 500ml	2
47	Sulphur 500gm	1
48	Ammonium hydroxide 500ml	1
49	Sodium Sulphate 500gm	1
50	Mercuric chloride 250 gm	1
51	Sodium nitro pruside 100gm	1
52	Tri chloro acitic acid 500gm	1
53	Potassium oxalate 500gm	1
54	Sodium citrate 500gm	1
55	Sodium bicarbonate 500gm	1
56	Calcium chloride 500gm	1
57	Spirit 500ml	4

58	Magnesium sulphate 500gm	1
59	Zinc sulphate 500gm	1
60	Xylene 500ml	1
61	DPX mount 250ml	1
62	Potassium dichromate 500gm	1
63	Potassium chloride 500gm	1
64	Potassium iodide 200gm	1
65	Total hardness tablets	2 bottles
66	Sodium nitrate 500gm	1
67	Oxalic acid 500gm	1
68	Sodium carbonate 500gm	1
69	Phenol 500ml	2
70	Acetone 500ml	2
71	Boric acid powder	1kg
72	Oil of cedar wood 100ml	1
73	Amyl alcohol 500ml	2
74	Elirilichis reagent 125 ml	2
75	Hydrogen peroxide 500ml	1
76	Sodium Nitrite 500gm	1
77	Sodium sulphite 500gm	1
78	Glycerol 500ml	1
79	Antbiotic discs (Refill type – Himedia ) of ciprofloxcellin, Enrofloxacillin, Ampicillin, cloxacillin, sulphamethoxazole and trimethoprim, Gentamycin, Chlorotetracyclin , oxytetracyclin , streptomycin ,	1 refill for each antibiotic
80	Nigrosine 100ml	2
81	Acetic acid 500ml	2
82	Liqiod soap	5 lit
83	Washing soda	1 kg
84	Bleaching power	5 kgs
85	Sulphuric acidcommercial	5 lit
86	Benzoic acid	100 gms
87	Formal dehyde	100 ml
88	Starch	200 gms
89	Resorcinol	500 gms
90	Resazurin tablets	20
91	Litmus paper	1 pkt
92	Bromothymol blue	125 ml
93	Quick lime	500 gms
94	Phenol	500 gms
95	Turmeric papers	1 box
96	Neem oil	1 lit
97	Castor oil	1 lit
98	Skim milk powder	1 kg

#### **D. PRACTICAL EQUIPMENT**

1	Electrical de beaker	2
2	Electrical Dehorner	2
3	Obstetrical hooks	1set
4	Detorsion rod	1
5	Obstetrical chains	4
6	Kry scottlers obstetrical hook	1
7	Surgical Cat gut No. 3	10

8	Surgical Nylon thread No.3	10 rolls
9	Surgical Black silk thread No3	10 rolls
10	Poultry brooding equipments	1
11	Automatic poultry vaccination Syringes	4
12	Tattooing set with letters from A-Z & Numbers 1-9	2

**ADDRESSES OF THE EQUIPMENT, GLASSWARE & CHEMICALS.****EQUIPMENT:**

1. Vet India Pharmaceuticals, Hanuman Tekadi, Opp. Pragathi Mahavidyalaya, Koti, Hyderabad (Surgical & Medical)
2. Andhra Chemicals, Begum Bazar, Hyderabad (Chemicals and surgicals)
3. Metters International, Anjali, 2<sup>nd</sup> Floor, 144 St. Johns Church Road, Bangalore 560 005. (A1 Equipment)
4. Bharath Heavy plates & Vessels ltd. BHPV Visakapatnam 530 012 (AP) (LN<sub>2</sub> Contininem)
5. High glass Chemicals, Near Tourist Hotel, Kachiguda, Hyderabad.
6. Hardware Engineers Works Pvt. Ltd, Meghji Compound 5-3-325, Mahatma Gandhi Road, Secunderabad – 500 003. (mixer, grinders, chaff cutter)
7. Sri Venkateswara Engineering works 3-10-44. Reddy Colony, Hanmakonda Dist., Warangal 506001, A.P. (Chaff cutter & grinder, mixer)
8. Rajasthan Electronics and instrument Ltd. 2, Kanakpura, industrial Area, Sivaji Road, Jaipur – 302 012.
9. Gupta and sons, Abids near GPO (for dairy chemicals cream separators and other dairy equipment)
10. M.C. Dalal and co. no. 12, Pillayar, Koil street, Madras – 3.
11. Alfalaval, Durgabai Deshmukh colony, Hyderabad (milking Machine and dairy equipment)
12. Unicorn machinery manufacturers Ltd. 13/1 Rasulpura, Secunderabad – 3. (milking machine and other equipments)
13. Southern Chemicals, 504, Meridian apts, Lekehill Roam Hyd – 463. (chemicals, flavour, colours etc)
14. Andhra Surgicals, Abid road, Nampally, Hyderabad
15. Asian Surgicals, Tilak Road, Hyderabad
16. Deccan Techno Corporation, Himayath nagar, Hyderabad

**WEIGHTAGE OF MARKS FOR PRACTICALS**

IQ. Major Experiment

-12 marks

	-- Procedure of the experiment (with diagrams)	-6 marks
	-- Performing the experiment and result	-6 marks
IIQ.	Minor Experiment	-8 marks
	-- Procedure	-4 marks
	-- Result / inference	-4 marks
IIIQ.	Identification of the spots	10x2=20 marks
	-- Identification	-½ mark
	-- Characteristics	-1 mark
	-- Diagram	-½ mark
IVQ.	Record and viva voce	-10 marks
	-- Record	-5 marks
	-- Viva voce	-5 marks
	<b>Total Marks</b>	<b>50 marks</b>

### **VIII. (A) COLLABORATION INSTITUTIONS FOR CURRICULUM TRANSACTION**

1. Acharya N.G. Ranga Agricultural University R'Nagar, Hyderabad – 500 030
2. College of Veterinary Science, Rajendranagar. Hyderabad
3. College of Veterinary Science, Tirupathi – 517 502
4. NTR College of Veterinary Science, Gannavaram, Krishna District
5. Dairy Technology Programme, College of Veterinary Science, Tirupathi - 517502
6. Department of Animal Husbandry, Government of Andhra Pradesh
7. Livestock Assistant Training Center – at Kakinada, Karimnagar, Reddipalli, Visakhapatnam, Warangal.
8. Institute of Animal Reproduction, Animal Husbandry Department, Government of Andhra Pradesh, Mandapeta, East Godavari District.
9. Department of Animal Husbandry. All Regional A-I centres, Polyclinics, Veterinary hospitals etc.

### **(B) On the Job Training**

1. Livestock Research Station, Lam, Guntur
2. Cattle farm, Bhanavasi, Kurnool District.
3. Buffalo Research Station, V.Gudem, W.G. District.
4. Livestock Research Station, Garividi, Vizianagaram District.
5. S.V.Dairy farm, Tirupathi
6. Military dairy farm, Visakhapatnam and Bollaram, Scunderabad
7. Livestock Research Stations at Palamaner and Mahabubnagar
8. Sheep farms at Penugonda, Siddirampuram Ananatpur District, Mamnoor, Warangal District.
9. Venkateswara Hatcheries, Bhoggulakunta, Hyderabad
10. Srinivasa Hatcheries, Vijayawada
11. Balaji Hatcheries, Chittoor
12. Department of Animal Husbandry. Polyclinics/ Veterinary hospitals Nearer to Junior colleges
13. Milk Products factories at Hyderabad, Vijayawada, Vadlamudi, Visakhapatnam, Rajuhundry, Warangal
14. Feed Plants at Bhuddavaram Krishna Dt. Vadlamudi, Guntur District, Visakhapatnam
15. Fodder farms at Bhanavasi, Reddypalle Ananatapur Dt. C.V.Sc, R'Nagar and Tirupathi
16. Frozen semen depots and centralized semen collection centers at district Head quarters
17. Slaughter Houses nearby cities/ municipalities

### **IX. QUALIFICATION FOR STAFF (FULL TIME / PART TIME)**

#### **1. Vocational Lecturer**

**Essential:** B.V.Sc & A.H./B.V.Sc./ B.Sc. (Dairy Technology -4 year course) / B.Tech (Dairying) / B.Sc. Animal Sciences with 55 per cent marks

Two years of experience in teaching/research/ extension/ livestock farms

**Desirable:** M.V.Sc. / PhD degrees in any disciplines of Veterinary Sciences/ M.Sc Dairying/ M.Sc Dairy Technology  
Any PG Diploma in Veterinary and Animal sciences

## **2. Laboratory Technician/ Laboratory Assistant**

**Essential:** + 2 Vocational courses in multipurpose Veterinary Asst/Diploma in Veterinary Science/ + 2 Vocational course in Dairying with 60 % marks

**Desirable:** Two years experience in Dairy farms/ dairy plants/ Veterinary hospitals/ Livestock farms/ other veterinary related activities

## **X. VERTICAL MOBILITY**

### **a. With Bridge Course:**

1. B.V.Sc. & AH
2. B.Tech (Dairying)
3. B.Sc. Biotechnology
4. B.Sc. (Environmental Sciences)
5. B.Sc. (Microbiology)
6. B.Sc. (Agri. & Rural Development)
7. B.Sc. (Forestry)
8. B.Sc. (BZC/AZC/BZD/Any combination of science subjects)

### **b. Without Bridge Course**

9. B.A
10. B.com

## XI. REFERENCE BOOKS

1. Livestock Production and Management by NSR Sastry, AK Thomas and RA Singh
2. Sheep, Goat and Pig production by Jagdish Prasad
3. Livestock and Poultry Production. Harbans Singh and E.N. Mooore.
4. Dairy Bovine Production – Thomas and Sastry.
5. Dairy India year book – 2006.
6. The Husbandry and health of the domestic buffalo – Rose Cockrill.
7. Principles of Dairy Science – G.H. Schmidt, L.D. Vanvelock, and M.F. Huljens
8. Handbook of Animal Husbandry, ICAR
9. Text book Animal Husbandry by G.C.Benarjee
10. Characteristics of cattle and buffalo breeds of India, ICAR, New delhi
11. Forage crops of India by T.R., Narayan and PM Dabadhao
12. Outlines of Dairy Technology by Sukumar de
13. Animal Nutrition and feeding practices by S.K.Ranjan
14. Artificial Insemination of farm animals-Perri J Ed
15. Veterinary Medicine by DM Rodastits, DC Blood and CC Gay . 9<sup>th</sup> Ed
16. Zoonoses by Mahender Pal
17. Text book of Preventive Veterinary Medicine by Amalendu Chakrabarathi
18. Text book of Clinical Veterinary Medicine by Amalendu Chakrabarathi
19. Poultry diseases, Diagnosis and Treatment by HVS Chauhan
20. Veterinary Obstetrics and Genital diseases SJ Roberts
21. Reproductive disorders in Dairy cows by V.N.Viswanatha Reddy
22. Clinical Diagnosis by W R Kelly
23. Essentials of Veterinary Surgery, by A.Venugopalan
24. Ruminant Surgery by RPS Tyagi
25. Anatomy of Domestic animals by Sissons
26. The Anatomy of Domestic animals by Getty
27. Pharmacological basis of Therapeutics by Goodman and Gillman
28. Modern Pharmacology by CR Craig
29. Dukes' Physiology of Domestic animals by M J Swinson
30. Applied Physiology by Wright
31. Text book of Veterinary Physiology by Cunningham
32. Animal Parasitology by L D Smith
33. Veterinary Protozoology by Richardson
34. Parasites of Domestic animals by Cameron
35. Medical Microbiology by Duguid I P.

36. Veterinary Bacteriology and Virology by Merchant IA
37. Microbiology by Lansing M P.
38. Clinical Pathology by Ganti A Sastry
39. Laboratory Techniques by B. Prasul
40. Veterinary lab Manual by Bush
41. Meat Hygiene by Gracy
42. Principle and Practices of dairy farm management by Jagadish Prasad
43. Dairy cattle principles, practices, problems and profit by Bath Donald and others
44. Livestock Economy of India I S AE Oxford & IBM Publications
45. Swine Science. M.E. Ensminger.
46. Management of wild animals in captivity, By Lee S. Crandall-  
-The University of Chicago.
47. Wild life Management By R.E. Trippensee-Mc Graw Hill Book Company New York
48. Wild life wealth of India By T.C. Manjupuria-Tecpress Service L.P 487/42, Soi Wattan  
Slip, Pratuman
49. Restraint and Handling of Wild and domestic animals.By M.E. Fowler-IOWH State  
university Press Ames.
50. Dogs and their management -Routledge & Kegan Pawlltd- Broad way House carter lane.
51. Genetics for Dog Breeders - Roy Robinson - Pergamon press- Oxford.
52. A to Z of Dogs - Capt. Sharma
53. Care and management of Dogs -Dr P.C Choudary

## **XII. MODEL QUESTION PAPERS**

### **Multi purpose Veterinary Assistant**

**MODEL QUESTION PAPER - Paper I (Theory)  
First Year**

**ANATOMY, PHYSIOLOGY, MICROBIOLOGY AND PARASITOLOGY**

Time: 3 hours

Max. Marks 50

**Section A**  
(English Version)

Note: (i) Answer all the questions 10 x 2= 20  
(ii) Each question carries two marks

1. Name the joints of forelimb
2. What are the different nerves present in the hind limb
3. What are the functions of gizzard in fowl
4. What is the principle of blood coagulation
5. Mention accessory glands in male reproductive system
6. What are the hormones secreted by pituitary gland
7. Classify microorganisms depending upon the optimum temperature of growth
8. Differentiate between ticks and mites
9. What are the hormones that regulate the milk secretion
10. What are the different components of blood

**Section -B**

Note: (i) Answer any five questions 5 x 6= 30  
(ii) Each question carries six marks

11. Explain digestive system of ruminant with the help of sketch diagram
12. Briefly write about the factors affecting the growth of microorganisms
13. Draw sketch diagram of mammary gland and explain in detail
14. Briefly explain about the various phases of cardiac cycle
15. Explain about the temperature regulation in animals
16. Explain the anatomy of shoulder and elbow joints
17. Briefly write about the mechanism of respiration in fowl.

**MODEL QUESTION PAPER - Paper II (Theory)**  
**First Year**

**RUMINANT ANIMAL PRODUCTION AND MANAGEMENT**

Time: 3 hours

Max. Marks 50

**Section A**  
(English Version)

Note: (i) Answer all the questions

10 x 2= 20

(ii) Each question carries two marks

1. Define Silage.
2. What is calf starter?
3. Name four Indian Buffalo breeds.
4. Write three important characteristic features of Nellore sheep
5. Write two reference books for this course mentioning author's names.
6. Define Colostrum.
7. What is Fodder Conservation?
8. What is Livestock Insurance?
9. Define White revolution.
10. Write purposes of Identification in livestock.

**Section - B**

Note : (I) Answer any FIVE questions

5 X 6 = 30

(II) Each question carries 6 marks

11. What are the steps in clean milk production?
12. What are the routine activities in a Dairy farm?
13. Write about care and management of calf.
14. Write about the role of livestock in Indian economy.
15. Describe the characteristics of Ongole cattle.
16. What are the feeding standards of milch animals
17. Write a Project report for 100+4 unit Sheep farm.

**MODEL QUESTION PAPER - Paper III (Theory)**  
**First Year**

**LABORATORY TECHNIQUES AND PHARMACOLOGY**

Time: 3 hours

Max. Marks 50

**Section A**  
(English Version)

Note: (i) Answer all the questions 10 x 2= 20  
(ii) Each question carries two marks

1. Mention different anticoagulants solutions used for laboratory diagnostics
2. Give the compositions of Gram's staining
3. What are the different adulterants used in milk
4. How you will collect skin scrapings in an animal
5. what are the uses of X-rays
6. Give the composition of boric acid ointment
7. Mention four local anesthetics
8. Mention different routs of systemic drug administration
9. What are the characteristics of oscaris ova
10. What are the different parts of microscope

**Section -B**

Note: (i) Answer any five questions 5 x 6= 30  
(ii) Each question carries six marks

11. Briefly write about collection, preservation and dispatch of blood sample
12. Explain the process of Zeihl Nelson's staining
13. Give the procedure for examination of urine for sugar and bile pigments
14. Explain about exposure and development of X-ray film
15. Write briefly about carminatives and antacids
16. Explain about antibiotic sensitivity test
17. Briefly write about heamocytometer and its operation

**MODEL QUESTION PAPER - Paper I**  
**Second Year**

**NON RUMINANT ANIMAL PRODUCTION AND MANAGEMENT**

Time: 3 hours

Max. Marks 50

**Section A**  
(English Version)

Note: (i) Answer all the questions 10 x 2= 20  
(ii) Each question carries two marks

1. Define Queen
2. What is Large white York shire?
3. Name four Dog breeds.
4. Write three important characteristic features of German shepherd dog.
5. Define Feeding.
6. What are Primates? Give two examples.
7. What is Effluent disposal?
8. Define Restraint.
9. Write two reference books for this course mentioning author's names.
10. Write purposes of Identification in livestock.

**Section -B**

Note: (i) Answer any five questions 5 x 6= 30  
(ii) Each question carry six marks

11. Write about various methods of slaughter of animals?
12. What are the routine activities in a Poultry farm?
13. Write about care and management of Pregnant animals.
14. Write about the role of livestock Marketing. Give its implications.
15. Write the classification of poultry breeds. Give the important features of Karaknath breed.
16. What are the feeding standards of Pet animals
17. Write a Project report for 1000 unit Layer farm.

**MODEL QUESTION PAPER - Paper II (Theory)**  
**Second Year**

**COMMON ANIMAL DISEASES AND THEIR PREVENTION**

Time: 3 hours

Max. Marks 50

**Section A**  
(English Version)

Note: (i) Answer all the questions 10 x 2= 20  
(ii) Each question carry two marks

1. Define Health
2. Name any four viral diseases
3. name any two Zoonotic bacterial diseases
4. What is a production disease
5. Name four protozoal diseases
6. Name two endo parasitic diseases of cattle
7. Write two cardinal signs of Haemorrhagic septicaemia in buffaloes
8. Define Mastitis
9. Name two etiological agents causing pneumonia In livestock
10. Name four infectious disease of sheep

**Section -B**

Note: (i) Answer any five questions 5 x 6= 30  
(ii) Each question carry six marks

11. Write about the principles of disease control and prevention.
12. Enumerate common diseases of new born and write about their prevention
13. Name two viral zoonotic diseases and write about the prevention of rabies.
14. Write short notes on
  - (a) PPR
  - (b) ET
15. How do you prevent Ketosis in dairy animals?
16. What is bloat and write about the clinical signs of a bullock suffering with bloat?
17. Write short notes on
  - (a) Stomach flukes
  - (b) Ascariasis

**MODEL QUESTION PAPER - Paper III (Theory)**  
**Second Year**

**ANIMAL REPRODUCTION, HOSPITAL MANAGEMENT AND SURGICAL**

**NURSING CARE**

Time: 3 hours

Max. Marks 50

**Section A**  
(English Version)

Note: (i) Answer all the questions 10 x 2= 20  
(ii) Each question carries two marks

1. Define parturition
2. What is artificial vagina?
3. How is blood collected from a cow?
4. How is heat detected in animals?
5. What is a Fracture?
6. Define pyometra.
7. What is thawing of semen?
8. What is sterilization?
9. What is dystocia?
10. Define wound.

**Section -B**

Note: (i) Answer any five questions 5 x 6= 30  
(ii) Each question carries six marks

11. Enumerate various female reproductive disorders in a buffalo and write in detail about any one of them
12. write in detail about semen processing and evaluation
13. write in detail about history taking in veterinary practice
14. Write short notes on
  - (a) Advantages of A.I
  - (b) Techniques of insemination
15. Write in detail about different routes of drug administration
16. How do you detect heat period in a buffalo
17. Write short notes on
  - (a) Disinfection of operation theatre
  - (b) Sterilization of surgical equipment

**MODEL QUESTION – Paper 1 (PRACTICALS)**  
**First Year**  
**ANATOMY, PHYSIOLOGY, MICROBIOLOGY AND PARASITOLOGY**

Time:3 hours

Max. Marks 50

1. Give the procedure of examination of faeces for parasitological examination, do the experiment and give your report for the presence of parasitic ova / parasites in the given sample of faeces. 12M
  
2. Draw sketch diagram of scapula of cattle, label the parts and briefly write about it.
  
3. Identify the following items
  - 8.6 Humerus.
  - 8.7 Tibia fibula.
  - 8.8 Stifel joint.
  - 8.9 Heart of cattle
  - 8.10 Spleen of cattle
  - 8.11 Gizzard
  - 8.12 Staphylococcus organisms
  - 8.13 Ascaris ova
  - 8.14 Ankylostomes ova
  - 8.15 Trypanosomes.
  
4.
  - a. Record 5M
  - B. Viva-voce. 5M

**MODEL QUESTION – Paper II (PRACTICALS)**  
**First Year**

**RUMINATANIMAL PRODUCTION AND MANAGEMENT**

Time:3 hours

Max. Marks 50

1. Write the procedure of platform test of milk, do the experiment and give your report on the quality of milk sample give to you. 12M
  
2. Write briefly about methods of identification of animals with sketch diagrams. 8M
  
3. Identify the following items 10x2=20
  - a. Holstein Friesian breed
  - b. Jersey breed
  - c. Murrah breed
  - d. Nellore breed of sheep
  - e. Jamuna puri breed of goat
  - f. Casting rope
  - g. Milking machine
  - h. Cream outlet of cream separator
  - i. Milk distributor of cream separator
  - j. Butryometer
  
4.
  - a. Record 5M
  - B. Viva-voce 5M

**MODEL QUESTION – Paper III (PRACTICALS)**  
**First Year**

**LABORATORY TECHNIQUES AND PHARMACOLOGY**

Time:3 hours

Max. Marks 50

1. Write the procedure of Gram's staining of blood smear, do the experiment and give your report about the type of bacteria for the given sample of blood. 12M
2. Write the procedure for estimation of acidity in milk, do the experiment and give your report on the sample of milk given to you. 8M
3. Identify the following items 10x2=20
  - a. Staphylococci microorganisms
  - b. Bacillus spores
  - c. Coliforms colonies
  - d. Hemacytometer
  - e. Hemoglobinometer
  - f. Mortar & Pistle
  - g. Capillary tube for clotting time
  - h. Positive test for sugar in urine
  - i. Positive test for bile salts in urine
  - j. Sediment tester
4.
  - a. Record 5M
  - B. Viva- voce 5M

**MODEL QUESTION – Paper I (PRACTICALS)**  
**Second Year**

**NON RUMINANT ANIMAL PRODUCTION AND MANAGEMENT**

Time:3 hours

Max. Marks 50

1. Draw sketch diagram of poultry house layout under deep litter system for one thousand birds capacity with measurements and explain in detail.  
12M
  
2. Write the handling procedure of dog and apply these procedures to the dog supplied to you. 8M
  
3. **Identify the following items** 10x2=20
  - a) Poultry cage for two birds
  - b) Poultry feeder linear type
  - c) Large white Yorkshire swine breed
  - d) Dalmatian dog breed
  - e) Grey giant breed of rabbit
  - f) Mineral mixture
  - g) Ground jowar
  - h) Neck collar for dog
  - i) Pig catcher
  - j) Egg Candler
  
4.
  - a. Record 5M
  - b. Viva-voce 5M

**MODEL QUESTION – Paper II (PRACTICALS)**  
**Second Year**

**COMMON ANIMAL DISEASES AND THEIR PREVENTION**

Time: 3 hours

Max. Marks 50

1. Write the procedure of recording body temperature, pulse and respiration and record them for the animal allotted to you.

12M

2. Give the composition of carminative mixture and prepare it from the raw ingredients supplied to you.

8M

3. Identify the following items

10x2=20

- a. Thermometer in of
- b. Strip cup
- c. Dextrose saline
- d. Sulphur ointment
- e. Tincture iodine
- f. Benzyl benzoate lotion
- g. Animal with dysnea
- h. Haemorrhagic septicaemia
- i. Stethoscope
- j. Bandage cloth

4. a. Record 5M  
b. Viva – voce 5M

**MODEL QUESTION – Paper III (PRACTICALS)  
Second Year**

**COMMON ANIMAL DISEASES AND THEIR PREVENTION**

Time: 3 hours

Max. Marks 50

1. Write the procedure of recto vaginal method of artificial insemination and do A.I. for the animal. 12M
2. Give the detail procedure of wound treatment and give the first day treatment to the wound of animal present in the hospital. 8M
3. Identify the following items. 10x2=20
  - a) Semen straw
  - b) Obstetrical hook
  - c) Cat gut
  - d) Curved teeth forceps
  - e) BP handle
  - f) Speculum for large animals
  - g) Artificial vagina liner
  - h) Insemination gun
  - i) Liquid nitrogen can
  - j) Drenching bamboo
4. a. Record 5M  
  
B. Viva-voce 5M

**XIII. LIST OF PARTICIPANTS OF SUBJECT COMMITTEE****1. DR. N. KRISHNAIAH,**

Associate Professor & Head,  
Dept. of Veterinary Public Health,  
College of Veterinary Science, Rajendranagar,  
Hyderabad – 500 030.  
Phone No. : 9848070744

**2. DR. P. AMEER HAMZA,**

Professor & University Head,  
Department of Veterinary Epidemiology & preventive Medicine,  
College of Veterinary Science, Rajendranagar,  
Hyderabad – 500 030.  
Phone No. : 9849447071

**3. DR. T. MADHAVA RAO,**

Associate Professor,  
Department of Livestock Products Technology,  
College of Veterinary Science, Rajendranagar,  
Hyderabad – 500 030.  
Phone No. : 9989051542

**4. DR. CH. HARI KRISHNA,**

Assistant Professor,  
Department of Livestock production & Management (LPM)  
College of Veterinary Science, Rajendranagar,  
Hyderabad – 500 030  
Phone No. : 9848063616

**5. DR. SMT. K. PADMAJA,**

Assistant Professor,  
Department of Clinical Veterinary Medicine,  
College of Veterinary Science, Rajendranagar,  
Hyderabad – 500 030  
Phone No. : 9440866325

**9. DR. L. GOVERDHAN REDDY,**

Assistant Director (AH),  
Nagar Kurnool,  
Mahabubnagar District.  
Phone No. : 9849109030

**10. DR. P. VENKATESWARA REDDY,**

Chief Veterinary Officer,  
3<sup>rd</sup> Floor, MCH,  
Hyderabad.  
Phone No. 9849006013

**11. SRI K. VISHWESHWAR,**

Junior lecturer in Dairying,  
Government Junior College,  
Kachiguda, Hyderabad.  
Phone No. : 9912236097

**12. SRI K.V.V. SATYANARAYANA,**

Additional Director,  
Commissioner of Intermediate Education,  
Andhra Pradesh, Hyderabad.  
Phone No. ; 9440816023

**13. SRI D. NAGESWARA RAO,**

Joint Secretary (VOC)  
Board of Intermediate Education,  
Andhra Pradesh, Hyderabad  
Phone No. :9848803114

**14. SMT T. LEELARAJ,**

Professor, SIVE,  
Commissioner of Intermediate Education,  
Andhra Pradesh, Hyderabad.  
Phone No. : 9440816025

**15. SRI MOHD. ABDUL BASITH,**

Reader, SIVE,  
Coordinator,  
O/o the Commissioner of Intermediate Education,  
Andhra Pradesh, Hyderabad.  
Phone No. : 9490052092