

**ANDHRA UNIVERSITY  
VISAKHAPATNAM**

**B. Vocational  
DAIRYING & ANIMAL HUSBANDRY  
(Honours)**

**UGC- NATIONAL SKILLS QUALIFICATIONS  
FRAMEWORK**

**SYLLABUS  
For  
1<sup>st</sup> to 8<sup>th</sup> Semesters**

**2025-2026 Admitted batch**

B.VOC (HONOURS) DAIRYING & ANIMAL HUSBANDRY 2025-26 BATCH			
Sl. No.	Course Title	Category	Total Credits
1st year - Semester - I			
1	Basics of Veterinary sciences	Major – core	3+1=4
2	Basics of Animal sciences	Major - core	3+1=4
3	AECC- English	Language	3+0=3
4	AECC – MIL (Telugu/Hindi/Sanskrit)	Language	3+0=3
5	Intro to Artificial Intelligence	Skill Enhancement course (SEC)	4+0=4
	End of Semester I of 1 <sup>st</sup> Year		16+2=18
1st year - Semester - II			
1	Veterinary Anatomy	Major – core	3+1=4
2	Veterinary Physiology	Major – core	3+1=4
3	English	Language	3+0=3
4	MIL (Telugu/Hindi/Sanskrit)	Language	3+0=3
5	Introduction to social work	Multi-disciplinary course	2+0=2
6	Application of Artificial Intelligence (Discipline specific)	Skill Enhancement course (SEC)	4+0=4
7	Indian Knowledge system		0+0=0
8	Community service project of 80 hours with 1 credit. Student is eligible for Exit option-1 with the award of Certificate		1
	End of Semester II of 1 <sup>st</sup> year		18+3=21
2nd year - Semester - III			
1	Basics of Animal nutrition	Major – core	3+1=4
2	Veterinary Public health and food safety	Major – core	3+1=4
3	Veterinary Immunology and vaccines	Major – core	3+1=4
4	Livestock Production and management	Minor	3+1=4
5	AECC (Creative writing/ Business writing in English)	Language	3+0=3
6	AECC (Creative writing/ Journalistic Writing in MIL- Telugu/ Hindi/ Sanskrit)	Language	3+0=3

7	Introduction to public administration	Multi-disciplinary course	2+0=2
8	Pet and zoo animal management	Skill enhancement course (SEC)	2+0=2
	End of Semester III of 2 <sup>nd</sup> year		22+4=26
2nd Year - Semester - IV			
1	Livestock products technology	Major – core	3+1=4
2	Infectious diseases of livestock and poultry	Major – core	3+1=4
3	Avian production and management	Major – core	3+1=4
4	Dairy plant management	Minor	3+1=4
5	Fundamentals of Economics	Multi-disciplinary course	2+0=2
6	Veterinarian in society	Skill enhancement course (SEC)	2+0=2
	End of Semester IV of 2 <sup>nd</sup> year		16+4=20
3rd Year - Semester - V			
1	Fundamentals of Veterinary medicine	Major – core	3+1=4
2	Basics of Veterinary surgery	Major – elective	3+1=4
3	Veterinary Gynaecology, Obstetrics and AI	Major – elective	3+1=4
4	Veterinary Pharmacology	Minor	3+1=4
5	Veterinary clinical practice	Minor	3+1=4
6	Environmental Education		2+0=2
	End of Semester V of 2 <sup>nd</sup> year		17+5=22
3rd Year - Semester - VI			
1	Laboratory diagnostic techniques	Major – elective	3+1=4
2	Fodder production and conservation	Major – elective	3+1=4
3	Animal genetics and breeding	Minor	3+1=4
4	Animal welfare ethics and jurisprudence	Minor	3+1=4
5	Semester Internship (Minimum of 180 hours (8 weeks) with 3 credits)		3
	End of Semester VI of 3 <sup>rd</sup> Year		12+7=19
Student is eligible for Exit option-2 with the award of Degree in respective discipline			

4th Year - Semester - VII			
1	General pathology	Major – core	3+1=4
2	Veterinary general bacteriology	Major – core	3+1=4
3	Veterinary general parasitology and helminthology	Major – core	3+1=4
4	Andrology and Artificial insemination	Major – elective	3+1=4
5	Poultry farming	Major – elective	3+1=4
6		Open online transdisciplinary course	2+0=2
7		Indian knowledge system- Audit course	-
	End of Semester VII of 4 <sup>th</sup> Year		17+5=22
4th Year - Semester - VIII			
1	Veterinary toxicology	Major – core	3+1=4
2	Avian pathology	Major – core	3+1=4
3	Veterinary protozoology	Major – core	3+1=4
4	Animal birth control programme	Major – elective	3+1=4
5	Hatchery management and biosecurity measures	Major – elective	3+1=4
6		Open online transdisciplinary course	2+0=2
7		Indian knowledge system- Audit course	-
	End of Semester VIII of 4 <sup>th</sup> Year		17+5=22

## INDEX

SL.NO	SEMESTER	TITLE OF THE SUBJECT	PAGE NO
1.	1 <sup>st</sup> Semester	Basics of Veterinary sciences	10-11
2.		Basics of Animal sciences	12-13
3.		AECC- English	14-15
4.		AECC – MIL (Telugu/Hindi/Sanskrit)	16-18
5.		Intro to Artificial Intelligence	19-22
6.	2 <sup>nd</sup> Semester	Veterinary Anatomy	24-25
7.		Veterinary Physiology	26-28
8.		English	29-30
9.		MIL (Telugu/Hindi/Sanskrit)	31-32
10.		Introduction to social work	33
11.		Application of Artificial Intelligence (Discipline specific)	34
12.		Indian Knowledge system	
13.	3 <sup>rd</sup> Semester	Basics of Animal nutrition	36-37
14.		Veterinary Public health and food safety	38-40
15.		Veterinary Immunology and vaccines	41-42
16.		Livestock Production and management	43-44
17.		AECC (Creative writing/ Business writing in English)	45
18.		AECC (Creative writing/ Journalistic Writing in MIL- Telugu/Hindi/Sanskrit)	46
19.		Introduction to public administration	47
20.		Pet and zoo animal management	48-49

21.	4 <sup>th</sup> Semester	Livestock products technology	51-53
22.		Infectious diseases of livestock and poultry	54-55
23.		Avian production and management	56-57
24.		Dairy plant management	58-59
25.		Fundamentals of economics	60
26.		Veterinarian in society	61-62
27.	5 <sup>th</sup> Semester	Fundamentals of Veterinary medicine	64-65
28.		Basics of Veterinary surgery	66-67
29.		Veterinary Gynaecology, Obstetrics and AI	68-69
30.		Veterinary Pharmacology	70-71
31.		Veterinary clinical practice	72-73
32.		Environmental Education	74-75
33.	6 <sup>th</sup> Semester	Laboratory diagnostic techniques	77-78
34.		Fodder production and conservation	79-80
35.		Animal genetics and breeding	81-82
36.		Animal welfare ethics and jurisprudence	83-85
37.	7 <sup>th</sup> Semester	General pathology	88-89
38.		Veterinary general bacteriology	90-91
39.		Veterinary general parasitology and helminthology	92-94
40.		Andrology and Artificial insemination	95-96
41.		Poultry farming	97-98

42.	<b>8<sup>th</sup> Semester</b>	Veterinary toxicology	100-101
43.		Avian pathology	102-103
44.		Veterinary protozoology	104-106
45.		Animal birth control Programme	107-109
46.		Hatchery management and Biosecurity Measures	110-111

## **CURRICULAR FRAME WORK**

### **B.Voc Dairying and Animal Husbandry (Honours)**

Subjects	Semester I	Semester II	Semester III	Semester IV	Semester V	Semester VI	Semester VII	Semester VIII	Total credits
English	3+0=3	3+0=3	3+0=3						9+0=9
Telugu/Hindi/Sanskrit	3+0=3	3+0=3	3+0=3						9+0=9
Multidisciplinary courses		2+0=2	2+0=2	2+0=2					6+0=6
Skill enhancement courses	4+0=4	4+0=4	2+0=2	2+0=2					12+0=12
Major subjects	6+2=8	6+2=8	9+3=12	9+3=12	9+3=12	6+2=8	15+5=20	15+5=20	75+25=100
Minor subjects			3+1=4	3+1=4	6+2=8	6+2=8			18+6=24
OOTC							2+0=2	2+0=2	4+0=4
IKS/Environmental education					2+0=2				2+0=2
CSP		0+1=1							0+1=1
Long-term internship						0+3=3			0+3=3
Total	16+2=18	18+2=20 1	22+4=26	16+4=20	17+5=22	12+4=16 3	17+5=22	17+5=22	135+35=170



**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**I Year – Semester I**  
**2025-26 Admitted batch**

<b>1<sup>st</sup> Semester</b>	1.	Basics of Veterinary sciences	Major – core	3+1=4
	2.	Basics of Animal sciences	Major - core	3+1=4
	3.	AECC- English	Language	3+0=3
	4.	AECC–MIL (Telugu/Hindi/Sanskrit)	Language	3+0=3
	5.	Intro to Artificial Intelligence	Skill Enhancement course (SEC)	4+0=4
<b>Total</b>				<b>16+2=18</b>

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**I Year – Semester I**  
**2025-26 Admitted batch**

**BASICS OF VETERINARY SCIENCES (Major - Core)**  
**(Credits 3+1=4)**

**UNIT – 1**

Introduction to Anatomy and Branches of Anatomy, Descriptive terms, Anatomical planes, Divisions of Gross Anatomy.

Introduction to Osteology – Osteological terms, Functions of bones and skeleton, Composition and Structure of bone.

General Arthrology, Introduction to Myology – Classification of muscles, Organs of Special Senses, Endocrine glands.

**UNIT – 2**

Physiology- Introduction to blood, Functions of blood as a body fluid, Various blood groups.

Introduction to physiology of digestion in animals, Respiration- Pulmonary volumes and capacities, Structure of kidney and its functions

**UNIT – 3**

Immunology - Important definitions in immunology, History and theories of immunology, Immune system – Lymphoid organs, cells- cells of specific immune system and Non-specific immune system.

**UNIT – 4**

Laboratory diagnostic techniques – Microscope and its components, care of microscope, Different types of microscopes, Sterilization – its mechanism and methods of sterilization.

**UNIT – 5**

Gynaecology – Terms used in Gynaecology, Introduction to Reproductive System, Puberty and Sexual Maturity – Factors affecting puberty and sexual maturity, Male and Female Reproductive Systems of Livestock.

**PRACTICALS:**

1. Structure, components and functions of Long Bone
2. Blood and its components
3. Cells of specific and non- specific immune system
4. Microscope and its Components
5. Structure of Male and Female reproductive system of Farm animals

**References:**

- Text book of Veterinary Anatomy - R.K.Ghosh
- Text book of Veterinary physiology - B.Bhattacharya
- Veterinary Immunology - Ian R Tizard, Elsevier Science
- Veterinary Laboratory Diagnosis - Chauhan RS
- Veterinary reproduction and obstetrics - Geoffrey H. Arthur

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**I Year – Semester I**  
**2025-26 Admitted batch**  
**BASICS OF VETERINARY SCIENCES (Major - Core)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3 hrs**

**Maximum: 70marks**

**SECTION – A**

Answer any **FOUR** questions. Each question carries five marks.

(5\*4 =20)

1. What is Anatomy and explain its divisions in detail?
2. Write about classification of bones?
3. List out various endocrine glands and its position in the body of animal?
4. Explain blood and its functions?
5. Write differences between primary and secondary lymphoid organs?
6. Write in detail history of immunology?
7. Explain various components of microscope?

**SECTION–B**

Answer **all** the Questions. Each question carries ten marks

(5\*10=50)

1. A. Explain in detail about structure of bone?  
Or  
B. Write in detail about classification of joints and classification of muscles?
2. A. Draw the diagram of cross section of kidney and write its functions?  
Or  
B. Explain in detail Reproductive system of Cow?
3. A. Explain different types of microscopes?  
Or  
B. Write in detail about sterilization and different methods of sterilization?
4. A. List out both primary and secondary lymphoid organs and explain in detail about primary lymphoid organs?  
Or  
B. List out cells of Immune system and write in detail about cells of specific Immune system?
5. A. Write in detail about factors affecting puberty and sexual maturity?  
Or  
B. Explain in detail Reproductive system of Bull?

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**I Year – Semester I**  
**2025-26 Admitted batch**

**BASICS OF ANIMAL SCIENCES (Major - Core)**  
**(Credits 3+1=4)**

**UNIT – 1**

Introduction to Livestock in India, Role of livestock in Indian economy, Problems and prospects of livestock industry in India. Common animal husbandry terms. Important breeds of cattle, buffalo, sheep and goat.

**UNIT -2**

Growth of poultry industry, Reasons for commercialization of poultry, Classification of poultry, Classification of poultry breeds based on their place of origin, Classification of poultry breeds based on their utility and economics, General characteristics and standards, Indigenous breeds of chickens.

**UNIT – 3**

Importance of nutrients in animal production and health, Proximate principles of feed in livestock, Common definitions in animal nutrition, Classification of nutrients.

**UNIT – 4**

Introduction to fodder, Scenario of livestock sector in the country, Requirement vs availability, Constraints and ways and means to increase forage production, Agriculture terminology related to fodder production, Agronomical practices for fodder production, Grasslands.

**UNIT -5**

Aim and scope of veterinary public health, Role of veterinarian in public health, One health concept, Principles and concepts of food hygiene and safety, Sources of contamination of food.

**PRACTICALS:**

1. Body confirmation points of bovines
2. Indian Registered Breeds of Chicken
3. Classification of Nutrients in animal feed
4. Agronomical practices for fodder production
5. Principles and concepts of food hygiene and safety

**References:**

- Handbook of Poultry Production and Management - M F Siddique
- Production and Grassland Management for Veterinarians - D.V.Reddy
- Textbook of elements of veterinary public health - A.T. Sherikar, V.N. Bachhil & D.C.Thapliyal
- Principles of animal nutrition and feed technology - D.V.Reddy
- Livestock Production Management - NSR SASTRY, CK THOMAS

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**I Year – Semester I**  
**2025-26 Admitted batch**  
**BASICS OF ANIMAL SCIENCES (Major - Core)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3 hrs**

**Maximum: 70marks**

**SECTION – A**

Answer any **FOUR** questions. **Each question carries Five marks.**

(5\*4 =20)

1. What are the principles of food hygiene?
2. Classify poultry breeds based on their place of origin.
3. Classify sheep and goat breeds based on their utility.
4. What are the nutrients present in different proximate principles of feeds?
5. What are the ways to increase fodder production?
6. What are the sources of contamination of food?
7. What do you understand by Livestock production?

**SECTION – B**

Answer **all** questions. Each question carries **TEN** marks

(5\*10 =50)

1. A. Write about the different Classifications of Cattle breeds in detail.

(OR)

B. What are the problems and prospects of livestock industry in India?

2. A. What are the reasons for commercialisation of poultry?

(OR)

B. Write the general characteristics of poultry breeds based on their place of origin.

3. A. Write the characteristics of indigenous breeds of poultry.

(OR)

B. Explain the classification of nutrients in detail.

4. A. What are the grassland improvement and management techniques.

(OR)

B. What are the various grazing methods.

5. A. Define one health and write about different components of one health.

(OR)

B. What is the role of a veterinarian in promotion of public health?

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**I Year – Semester I**  
**2025-26 Admitted batch**

**ENGLISH**  
**(Credits 3+0=3)**

**Unit I**

- Poem: Coromandel Fishers –Sarojini Naidu
- Short Story: The Night Train at Deoli –Ruskin Bond
- Parts of Speech

**Unit II**

- Short Story: The Lost Child –Mulk Raj Anand
- Prose: Letter to a Teacher –School of Barbiana
- Articles and Prepositions

**Unit III**

- Poem: Where the Mind is Without Fear –Rabindranath Tagore
- Speech: How Dare You –Greta Thunberg (Open Source)
- Question tags.

**Unit IV**

- Poem: Night of the Scorpion –Nissim Ezekiel
- One Act Play: Refund –Fritz Karinthy
- Tenses

**Unit V**

- Short Story: An Astrologer's Day –R. K. Narayan
- Phonetics: Basic Sounds and Word Stress
- Intonation and Homophones

## **Suggested Classroom Activities (Unit-wise)**

### **Unit I**

- Speaking activity: My village/town .

### **Unit II**

- Story telling and letter writing.

### **Unit III**

- JAM and reading comprehension

### **Unit IV**

- Listening to TED Talks and dialogue writing

### **Unit V**

- Phonetics practice with minimal pairs, stress marking, and reading aloud.
- Read passages following stress and intonation
- Write stories based on pictures facilitated.

## **Suggested Reference Books and Resources**

1. Board of Editors. English for Life. Orient Black Swan.
2. Raymond Murphy. Essential Grammar in Use. Cambridge University Press.
3. T. Balasubramanian. A Textbook of English Phonetics for Indian Students. Macmillan.
4. Greta Thunberg's UN Speech (Open Educational Resource)
5. Mulk Raj Anand. The Lost Child.
6. Sarojini Naidu. The Bird of Time.
7. Nissim Ezekiel. Collected Poems.
8. Rabindranath Tagore. Gitanjali.
9. School of Barbiana. Letter to a Teacher.

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry (Honours)**  
**I Year – Semester I**  
**2025-26 Admitted batch**

**TELUGU**  
**(Credits 3+0=3)**

**యూనిట్ -I ప్రాచీన కవితవం**

హితోపదేశం – తికకన - ఆంధ్ర మహాభారతం – శలయపరవం – పాథమాశావసం (41-66 పద్యములు)  
(“మందరంబు( బోవేశింపక ...” నుంచి “...పందుగోరిన నదయేల పసగు చెవుమ.” వరకు)

- ☐ తికకన - కవి పరిచయం
- ☐ హితోపదేశం – ప్రతాపయంశం
- ☐ యుద్ధం – నాడు, నేడు
- ☐ హితోపదేశం - ప్రతాపయంశ సందేశం

**యూనిట్ -II శతకసాహిత్యం**

ఆణిముత్యములు - ఏనుగు లక్ష్మణకవి – సుభాషిత రత్నావళి – విద్యుత్పద్ధతి(1,2), ధైర్యపద్ధతి(3,4), శ్రాకాల్హస్తాతశవరశతకం(5,6), వేమన శతకం(7,8), భాసకరశతకం(9,10)

1. “భూష్ణ గావు మర్త్యులకు ...”
2. “విద్య నిగూఢ గుప్తమగువితము ...”
3. “ఆరంభంపర్ నీచమానవులు ...”
4. “ఒకచో నేలను బ్రవళించు ...”
5. “ఒకరిం జంపి పద్మధలై ...”
6. “జాతులెప్పుట్, సేవచేయుట్...”
7. చెపపబ్బి సావతిచినుకు...”
8. “నికకమైన మంచి నీలమొకకటి...”
9. “సంతత పుణ్యశాలి...”
10. “పలుమఱు సజజనుండు...”

**యూనిట్ -III ఆధునిక పద్యకవితవం**

వయతయయము – గుఱ్ఱం జాషువ – కొత్తలోకము

- ☐ కవి పరిచయం
- ☐ వయతయయము - ప్రతాపయంశం
- ☐ రచనా నేపథ్యం
- ☐ కవితవభవయక్ర



## యూనిట్ -IV ఆధునిక వచన కవితవం

1. 'కెమిస్ట్రీ ఆఫ్ టీయర్స్' - కొపపరిత - కవి పరిచయం
2. బొగులపయ్యయ - పాగతి, ఎం. - కవయ్యితౌ పరిచయం ప్రరాయంశం

## యూనిట్ -V కథాసాహితయం

1. కాశవవ బోగాతం - స.వం. .రమేశ్ - రచయ్యత పరిచయం
2. మాయ - రావిశాస్త్రి - రచయ్యత పరిచయం ప్రరాయంశం

## వాయకరణం

□ సంధులు: అతవ, ఇతవ, ఉతవ, తిక, యడాగమ, ర్తాగమ, సరళాదేశ, గసడ్వాదేశ

సవరణ దీరఘ, గుణ, యణదేశ, వృదయ సంధులు.

□ సమాసాలు: తతుపర్వ్, కరమధ్యరయ, ద్వంద్వ, దవగు, భువ్రాహి.

## ఆధ్యర గాంధాలు:

1. శ్రామద్వంధౌ మహాభారతము - శలయపరవము - తిర్మల తిర్మతి దేవసాధనం పాచురణ
2. సుభాషిత రత్తివళి - ఏనుగు లక్ష్మణకవి
3. వేమన శతకం
4. భాసకరశతకం
5. జాషువ సరవలభ్యరచనల సంగాహం - మనసు ఫండేష్ వారి పాచురణ.
6. కొపపరిత కవితవం - శ్రాశ్రా పింట్ రెస్, విజయవాడ్.
7. 'నీలకురింజి సముద్ం' కవితల సంపుటి - తూముచరల రాజారాం (సం.) ప్రగతి కవితవం, ఛాయా ప్రికేషన్స్, హైదరాబాద్

## సూచించబ్బిన సప్రూర్య కారయకామాలు:

1. ననియయ, తికకన, ఎఱున మొదైన పాస్త్రద్య కవుల ప్రరాయంశేతర పద్యయలను ఇచి, విద్యయర్తలచేత సమీక్షు రాయంచడం; ఆయా పద్యయలోలని యతిప్రసాద ఛందోవిశేషాలను గురితంపజేయడం.
2. తెలుగులోని శతకసాహితయవైశిషటయని అధ్యయనం చేయంచడం.
3. విద్యయర్తలచేత ప్రరాయంశాలకు సంబంధంచిన వాయసాలు రాయంచడం (సెమినార్స్/అనైన్మంట్).
4. ప్రాచీన ప్రరాయంశాలలోని సమకాలీనతను గూరిన బ్ండ్ చరి, ప్రాచీన సాహిత్యయని నేటి సామాజిక ద్పిటతో పునర్మమల్యంకనం చేయంచడం.
5. చారితాక, సాంసకృతిక అంశాలకు సంబంధంచిన పరాయటృ పాదేశాలను సంద్రిశంచడం.
6. వయక్రతగత/బ్ండ్ ప్రాజెకుటలు చేయంచడం.
7. వివిధ ప్రిరకలు సోమవారం ప్రచురంచే సాహితీ పేజీలను ప్రశీలంచడం.

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry (Honours)**  
**I Year – Semester I**  
**2025-26 Admitted batch**

**Hindi/ Sanskrit**  
**(Credits 3+0=3)**

**As per APSCHE**

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry (Honours)**  
**I Year – Semester I**  
**2025-26 Admitted batch**

**INTRO TO ARTIFICIAL INTELLIGENCE (Skill Enhancement course)**  
**(Credits 4+0=4)**

**Unit I. AI and its Subfields**

Introduction to Artificial Intelligence, History, Definition, Artificial General Intelligence, Industry Applications of AI, Challenges in AI.

Knowledge Engineering, Machine Learning, Computer Vision, Natural Language Processing, Robotics.

**Unit 2. Applications of AI**

Healthcare, Finance, Retail, Agriculture, Education, Transportation.

**Unit 3. Bias and Fairness in AI Systems**

Ethics in AI, Bias and Fairness in AI Systems, Transparency in AI Systems, Accountability, Security, Privacy, Inclusivity, Sustainability, Robustness, Reliability.

**Unit 4. AI in Research, Generative AI and prompt engineering**

AI in Experimentation and Multi-disciplinary research, Generative AI introduction, ChatGPT, Hugging Face, Gemini and other tools basics, Perplexity, Prompt engineering Definition and its importance, Role of Prompt Engineering in AI/ML Interaction, Emerging trends and Future Directions in AI.

**Unit 5. Applications of Prompt engineering**

Applications of Prompt Engineering: Education, Business & Commerce, Content Creation: AI for Creative Writing, AI for creative design, writing AI scripts for video, generating slides and slidesGPT usage, Designing thumbnails and channel branding with AI

**Practical**

1. Create a mind map of AI subfields: NLP, CV, ML, Robotics, Knowledge Engineering using Canva/Napkin AI/ Similar Open AI tool
2. Text Analysis with Open-Source NLP Tools: **Tool:** Voyant Tools (text analysis web app)
  - Input sample texts (e.g., news articles, speeches).
  - Explore word frequency, keywords, sentiment.
  - Understand how NLP extracts meaning from text.
3. Train a basic image classifier using webcam images. Observe how the model "learns." Using Google Teachable Machine
  - Train two image categories (e.g., "Smiling" vs. "Not Smiling") using their own webcam images.
  - Observe how the model learns to classify.
  - Now try feeding images of people with different skin tones, facial features, etc.

- Observe misclassifications or differences in confidence.

4. Simulate an AI chatbot helping a farmer or a student. You may use any GenAI tool of your choice. You may use the prompt below and also try your own.

Prompt:

*“Act as an agriculture assistant. A farmer wants to know the best crop based on soil and season. Ask questions and suggest crops.”*

5. Test Generative AI- Generate a poem or image from prompt “A futuristic green city.” using ChatGPT, Hugging Face (e.g., image or text generation)

6. Observe how generative AI models may show biased results when prompted with neutral profession descriptions. (Bing Image Creator / DALL·E on ChatGPT/ChatGPT). Generate images using the following neutral prompts:

- “A doctor treating a patient”
- “A teacher in a classroom”
- “A CEO giving a speech”
- “A software engineer working from home”

7. Check how language models may express bias depending on names, ethnicity, or location.

Use ChatGPT or Gemini

Prompts:

Prompt A:

“A person named Raj is applying for a bank loan. Will he be approved?”

Prompt B:

“A person named John is applying for a bank loan. Will he be approved?”

Change names, genders, and nationalities.

Observe the following and report your findings:

- Are the responses different?
- Is one version more positive or negative?
- Does the model express bias or hesitate?
- Should AI make such predictions?
- How do developers prevent this?

8. Exploring Text Generation and Summarization with Google AI Studio

### **Generate Creative Content**

“Write a short story (150 words) about a robot who wants to become a chef.”

- Submit and read the AI-generated story.
- Discuss how detailed and creative the output is.

### **Summarize a Paragraph**

**Prompt:**

Summarize the following paragraph in 3 sentences:

“Artificial Intelligence is a branch of computer science that aims to create intelligent machines that can mimic human thinking. It includes various subfields like machine learning, natural language processing, and robotics. AI is widely used in industries such as healthcare, finance, and transportation to improve efficiency and decision-making.”

- Submit and review the summary.
- Evaluate how well AI extracts key points.

### **Refine Your Prompt**

Try changing the summary prompt to:

“Summarize the paragraph above in simple language for 10-year-olds.”

- Compare this output to the previous one.
- Note how prompt wording changes results.

### **9. AI for Creative Writing**

**Prompt:** “Write a short motivational story for 10-year-old students in under 150 words.”

### **10. Generate Slides:** Tool: SlidesGPT/Other Free AI tool

**Prompt:** “Create a 5-slide presentation on ‘AI in Smart Farming’.”

### **11. YouTube Thumbnails / Branding:** Tool: Canva + Magic Media AI

Design a thumbnail using Canva’s AI tools with a prompt like:

“Design a YouTube thumbnail for a video titled ‘Top 5 AI Tools for Students’.”

### **Text Books:**

1. AI for Everyone: A Beginner's Handbook for Artificial Intelligence (AI) by Saptarsi Goswami, Amit Kumar Das , Amlan Chakrabarti
2. Prompt Engineering for Beginners: by Kapila Arora, Geetu Garg, Gaurav Arora.

### **References:**

1. Let’s Learn Artificial Intelligence: Base Module, Niti Ayog, Atal Innovation Mission.
2. Prompt Engineering for Generative AI: Future-proof inputs for Reliable AI-outputs by James Phoenix & Mike Taylor.
3. Generative AI Tutorial:[https://www.w3schools.com/gen\\_ai/](https://www.w3schools.com/gen_ai/)
4. Generative AI 360°: Practical Guide to ChatGPT, Midjourney & AI Tools to Boost Productivity & Creativity , For Professionals, Marketers & Entrepreneurs by Hitesh Motwani , ZebraLearn, 2025.
5. Generative AI: Prompt Engineering Basics:
6. Learn Generative AI Prompt Engineering for everyone. <https://www.coursera.org/learn/generative-ai-prompt-engineering-for-everyone?action=enroll>
7. Free Artificial Intelligence (AI) Tutorial - Hands-On Prompt Engineering for AI Beginners & Business User | Udemy,

<https://www.udemy.com/course/prompt-engineering-for-ai-beginners-business-users>

### **Text Books:**

1. AI for Everyone: A Beginner's Handbook for Artificial Intelligence (AI) by Saptarsi Goswami, Amit Kumar Das , Amlan Chakrabarti
2. Prompt Engineering for Beginners: by Kapila Arora, Geetu Garg, Gaurav Arora.

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1. Let's Learn Artificial Intelligence: Base Module, Niti Ayog, Atal Innovation Mission.
2. Prompt Engineering for Generative AI: Future-proof inputs for Reliable AI-outputs by James Phoenix & Mike Taylor.
3. Generative AI Tutorial:[https://www.w3schools.com/gen\\_ai/](https://www.w3schools.com/gen_ai/)
4. Generative AI 360°: Practical Guide to ChatGPT, Midjourney & AI Tools to Boost Productivity & Creativity , For Professionals, Marketers & Entrepreneurs by Hitesh Motwani , ZebraLearn, 2025.
5. Generative AI: Prompt Engineering Basics:
6. Learn Generative AI Prompt Engineering for everyone. <https://www.coursera.org/learn/generative-ai-prompt-engineering-for-everyone?action=enroll>
7. Free Artificial Intelligence (AI) Tutorial - Hands-On Prompt Engineering for AI Beginners & Business User | Udemey,  
  
<https://www.udemy.com/course/prompt-engineering-for-ai-beginners-business-users>

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**I Year – Semester II**  
**2025-26 Admitted batch**

<b>2<sup>nd</sup> Semester</b>	1.	Veterinary Anatomy	Major – core	3+1=4
	2.	Veterinary Physiology	Major – core	3+1=4
	3.	English	Language	3+0=3
	4.	MIL (Telugu/Hindi/Sanskrit)	Language	3+0=3
	5.	Introduction to social work	Multi-disciplinary course	2+0=2
	6.	Application of Artificial Intelligence (Discipline specific)	Skill Enhancement course (SEC)	4+0=4
	7.	Indian Knowledge system		0+0=0
<b>Total</b>				<b>18+3=21</b>
<b>Community service project of 80 hours with 1 credit.</b> <b>Student is eligible for Exit option-1 with the award of Certificate</b>				

**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**I Year – Semester II**  
**2025-26 Admitted batch**

**VETERINARY ANATOMY (Major - core)**  
**(Credits 3+1=4)**

**UNIT - 1**

Study of skeletal system and different bones of cow. Study of different joints. Study of muscles of different regions of the body (**excluding origin, insertion, blood supply & nerve supply**).

**UNIT – 2**

Splanchnology. Study of different boundaries of thoracic, abdominal and pelvic cavities. Study of digestive systems of cow. Study of salivary glands, liver, pancreas, and spleen. Study of respiratory system and urinary system. Study of male and female genital systems. Study of mammary gland of cow.

**UNIT – 3**

Study of skeletal system of dog. Study of digestive, respiratory, and urogenital systems of dog and poultry.

**UNIT-4**

Angiology. Study of heart and systemic circulation. Study of major blood vessels. Blood supply to Brain and different internal organs. Lymphatic system. Position of different lymph nodes.

**UNIT-5**

Neurology. Study of neuron, nerve trunk, meninges, brain and spinal cord. Study of cranial nerves, spinal nerves, brachial plexus, lumbo sacral plexus.

**PRACTICALS**

- Demonstration of bones of different species.
- Demonstration of organs of digestive, respiratory and urogenital systems.
- Study of rumen, reticulum, omasum and abomasum of ox.
- Study of digestive system of dog.
- Study of digestive system of poultry

**Reference books:**

- Text book of Veterinary Anatomy - R.K.Ghosh
- Text book of Veterinary Anatomy - K.M.Dyce
- Introduction to Veterinary Anatomy - Victoria Aspinall BVSc MRCVS, Melanie Cappello BSc(Hons)



**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**I Year – Semester II**  
**2025-26 Admitted batch**  
**VETERINARY ANATOMY (Major - core)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3 hrs**

**Maximum: 70marks**

**SECTION – A**

Answer any **FOUR** questions. **Each question carries Five marks.**

(4\*5 =20)

1. Write about salivary glands of cow. What are the functions of saliva.
2. What is pelvic cavity? Explain in detail.
3. Explain the location of various organs in thoracic cavity.
4. List out the cranial nerves, blood vessels and lymph nodes of head and neck region
5. Draw the diagram of digestive system of dog, label the parts and explain in brief the different parts.
6. Write in detail about respiratory system of poultry.
7. Write in detail about mammary gland in cow.

**SECTION – B**

Answer All the questions. Each question carries TEN marks

(5\*10 =50)

1. A) Write the borders of abdominal cavity and what are the various organs located in the abdominal cavity.  
(or)  
B) Explain the structure of Femur and Humerus with the help of diagrams.
2. A) Explain the bones of hind limb in dog.  
(or)  
B) explain in detail about respiratory system of cow.
3. A) Describe the digestive system of poultry.  
(or)  
B) Describe the stifle joint of ox.
4. A) write in detail about sense organs.  
(or)  
B) What is brachial plexus. Explain in detail.
5. A) Draw the diagram of female reproductive system of ox and label the different components.  
(or)  
B) Explain the structure of heart with the help of a well labelled diagram.

**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**I Year – Semester II**  
**2025-26 Admitted batch**

**VETERINARY PHYSIOLOGY (Major – core)**  
**(Credits 3+1=4)**

**UNIT - 1**

Erythropoiesis, factors influencing erythropoiesis, fate of R.B.C;

Hemoglobin-chemical structure, physiological functions, derivatives of hemoglobin; Leucocytes, differential leucocyte count. Thrombocytes, Haemorrhage, hemostasis, Blood groups.

**UNIT - 2**

Physiology of the gastrointestinal tracts of ruminants and monogastric animals

Prehension, defecation; vomition; function of saliva, stomach, intestine, pancreas; bile secretion; hunger, appetite control.

Oesophageal groove, rumination, fermentation.

**UNIT – 3**

Physiology of respiration and mechanics of breathing. Transport of blood gases, foetal and neonatal oxygen transport. Physiology of excretory system, nephron structure, urine formation.

**UNIT - 4**

Introduction and basics of endocrinology. Major endocrine glands and their hormones. Hormones and their action on different systems of the body.

**UNIT-5**

Physiology of Puberty. Physiology of reproduction in male, spermatogenesis. Physiology of reproduction in female, Folliculogenesis, ovulation, estrus cycles. Mating behavior, fertilization, parturition. Lactation.

**PRACTICALS**

1. Collection of blood samples - Separation of serum and plasma
2. Enumeration of erythrocytes.
3. Enumeration of leucocytes.
4. Estimation of haemoglobin.
5. Counting of rumen motility
6. Sperm motility.
7. Sperm concentration -live and dead - abnormal sperm count.
8. Health parameters of animals- body temperature, pulse, respiration and heart rate

**Reference books:**

- Textbook of Veterinary Physiology - Bradley Klein, Elsevier
- Animal physiology - M. Armugam, A. Mariakuttukam
- Physiology of domestic animals - Dukes
- Text book of Veterinary physiology - B.Bhattacharya

**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**I Year – Semester II**  
**2025-26 Admitted batch**  
**VETERINARY PHYSIOLOGY (Major – core)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3hrs**

**Maximum: 70 marks**

**SECTION – A**

Answer any **FOUR** questions. **Each question carries Five marks.**

(4\*5 =20)

1. Write in detail about erythropoiesis and fate of RBC
2. Functions of saliva in ruminant and monogastric animals
3. Write in detail about structure of nephron and various factors affecting glomerular filtration rate.
4. Explain oesophageal groove.
5. What is estrus cycle? Briefly explain estrus behaviour.
6. Explain briefly about milking reflex in a cow.

**SECTION – B**

Answer All the questions. Each question carries **TEN** marks

(5\*10 =50)

1. A) Explain esophageal groove reflex  
(or)  
B) Describe in detail the hormones secreted by Hypothalamus
2. A) Explain the transport of blood gases  
(or)  
B) Define hemorrhage. Explain in detail about mechanism of blood coagulation
3. (A)What are the functions of kidney? Draw the structure of nephron & explain.  
(or)  
B) write in detail about thermoregulation in scrotum.
4. A) write in detail about spermatogenesis.  
(or)  
B) Write down the endocrine activity of GIT.
5. A) What are the functions of bile  
(or)  
B) Explain in detail about lactogenesis in cow.

**ANDHRA UNIVERSITY**  
**B. Vocational course**  
**Dairying & Animal husbandry - Honours**  
**I Year – Semester II**  
**2025-26 Admitted batch**

**English**  
**(Credits 3+0=3)**

**Unit I**

- Prose: “On Saying Please” –A.G. Gardiner
- Short Story: “Half a Rupee Worth” –R.K. Narayan
- Conversion of Words.

**Unit II**

- Poem: “If” –Rudyard Kipling
- Prose: “I Have a Dream” –Martin Luther King Jr.
- Skimming & Scanning

**Unit III**

- One-Act Play: “Never, Never Nest” –Cedric Mount
- Short Story: “The Gift of the Magi” –O. Henry
- Report Writing

**Unit IV**

- Short Story: “How I Taught My Grandmother to Read” –Sudha Murty
- Information Transfer: Pie Charts , tree diagram and flow chart.
- Note-making

**Unit V**

- Prose: “The Secret of Work” –Swami Vivekananda
- Notices, Agendas, and Minutes
- One-Word Substitutes

**Unit-wise Suggested Activities:**

**Unit I**

- Vocabulary games
- Role-play

**Unit II**

- Presentation on a dream job.
- Group Discussion

**Unit III**

- Debate on EMI
- Report Writing college events

**Unit IV**

- Presentation using ppt (charts/photos)
- Preparing notes from a short lecture/podcast

**Unit V**

- Drafting a Notice and Agenda for a student meeting
- Vocabulary Quiz

**Reference Books:**

- Fluency in English –Part II, Board of Editors, Orient BlackSwan
- Effective Technical Communication by M. Ashraf Rizvi (McGraw Hill)
- English Grammar in Use by Raymond Murphy (Cambridge)
- Professional Communication by Aruna Koneru (McGraw Hill)
- Selected Stories by R.K. Narayan (Indian Thought Publications)
- Collected Essays of A.G. Gardiner
- Collected Poems by Rudyard Kipling
- The Gift of the Magi and Other Stories by O. Henry
- Selected Speeches of Swami Vivekananda
- Short Stories by Sudha Murty (Penguin India)

**ANDHRA UNIVERSITY**  
**B. Vocational course**  
**Dairying & Animal husbandry (Honours)**  
**I Year – Semester II**  
**2025-26 Admitted batch**

**Telugu**  
**(Credits 3+0=3)**

**As per APSCHE**

**ANDHRA UNIVERSITY**  
**B. Vocational course**  
**Dairying & Animal husbandry (Honours)**  
**I Year – Semester II**  
**2025-26 Admitted batch**

**Hindi/ Sanskrit**  
**(Credits 3+0=3)**

**As per APSCHE**



**ANDHRA UNIVERSITY**  
**B. Vocational course**  
**Dairying & Animal husbandry (Honours)**  
**I Year – Semester II**  
**2025-26 Admitted batch**

**INTRODUCTION TO SOCIAL WORK** (Multi-disciplinary course)  
**(Credits 2+0=2)**

**Unit-I**

Introduction to social work and concepts related to social work  
Introduction to Social Work- Definition- Scope- objectives - Functions- social service, social welfare services, social reform, major social problems in India; Social work philosophy, values, objectives, principles, methods and fields of social work.

**Unit-II**

Methods of Working with Individuals and Groups  
Social case work –Definition-scope and importance of social case work, principles and process of social case work -Tools and techniques in social case work- Counselling skills.  
Social Group Work-Definition-scope- the need for social group work –Group work process - Principles of Group Work -Stages of Group Work-Facilitation skills and techniques.

**Unit-III**

Working with Communities and Field Work in social work  
Community – definition - characteristics- types- community organisation as a method of social work-definition-objectives-principles- phases of community organization - concepts of community development, community participation and community empowerment.  
Field work in social work – Nature, objectives and types of field work - Importance of field work supervision.

**References:**

1. Chowdhary, Paul. D. (1992). Introduction to Social Work. New Delhi: Atma Ram and Sons.
2. Friedlander W.A. (1955). Introduction to social welfare, New York, Prentice Hall.
3. Government of India, (1987). Encyclopedia of Social Work in India (Set of 4 Volumes). New Delhi, Publications Division, Ministry of Information and Broadcasting.
4. Lal Das, D.K. (2017). Practice of Social Research – Social Work Perspective, Jaipur, Rawat Publications.
6. Madan, G.R. (2009). Indian Social Problems (Volume 1 & 2). New Delhi: Allied publishers Private Limited.
7. Siddiqui, H.Y.(2007). Social Group Work. Jaipur: Rawat Publications
8. Pasty McCarthy & Carolin Hatcher, (2002). Presentation skills. The Essential Guide for Students. New Delhi, Sage Publications.
9. Websites on Social work methods

**ANDHRA UNIVERSITY**  
**B. Vocational course**  
**Dairying & Animal husbandry (Honours)**  
**I Year – Semester II**  
**2025-26 Admitted batch**

**Application of Artificial Intelligence (Skill Enhancement course)**  
**(Credits 4+0=4)**

**As per APSCHE**

**ANDHRA UNIVERSITY**  
**B. Vocational course**  
**Dairying & Animal husbandry - Honours**  
**II Year – Semester III**  
**2025-26 Admitted batch**

<b>3<sup>rd</sup> Semester</b>	1.	Basics of Animal nutrition	Major – core	3+1=4
	2.	Veterinary Public health and food safety	Major – core	3+1=4
	3.	Veterinary Immunology and vaccines	Major – core	3+1=4
	4.	Livestock Production and management	Minor	3+1=4
	5.	AECC (Creative writing/ Business writing in English)	Language	3+0=3
	6.	AECC (Creative writing/ Journalistic Writing in MIL- Telugu/ Hindi/ Sanskrit)	Language	3+0=3
	7.	Introduction to public administration	Multi-disciplinary course	2+0=2
	8.	Pet and zoo animal management	Skill enhancement course (SEC)	2+0=2
<b>Total</b>				<b>22+4=26</b>

**ANDHRA UNIVERSITY**  
**B. Vocational course**  
**Dairying & Animal husbandry - Honours**  
**II Year – Semester III**  
**2025-26 Admitted batch**

**BASICS OF ANIMAL NUTRITION (Major – core)**  
**(Credits 3+1=4)**

**UNIT – 1**

Carbohydrates – sugars- soluble carbohydrates- crude fiber – non starch polysaccharides – energy – gross energy- digestible energy- metabolized energy- starch equivalent.

**UNIT – 2**

Protein in animal nutrition, true protein, crude protein, amino acids, essential & non-essential amino acids, biological values

**UNIT -3**

Lipid nutrition, essential fatty acids, omega fatty acids

**UNIT – 4**

Minerals in animal nutrition, major & minor minerals

Vitamins, fat- & water-soluble vitamins – roles, deficiency symptoms, sources of vitamins

**UNIT – 5**

Compound feeds, feed supplements, feed additives

General consideration while feeding of various species of livestock products, dairy cattle and buffalo, sheep, goat, pig, poultry.

Special consideration in the nutrition of different livestock species, ruminants – non-ruminants – poultry

**PRACTICALS**

1. General acquaintance of various equipment in Nutrition laboratory – Hot air oven – Kjeldal Digestion and Distillation Unit – Soxhlet Apparatus – Muffle furnace.
2. Detection of common adulterants in feeds.
3. Agro-industrial Byproducts
4. Feed formulation – Ration formulation – practical exercises
5. Visit to Cattle feed plant and Poultry feed plant.

**References:**

- Principles of animal nutrition and feed technology - D.V.Reddy
- Principles and practices of animal nutrition - Jagadish Prasad
- A textbook of animal nutrition - D.N. Verma, Kalyani
- Basic animal nutrition and feeding - Pond, Wiley
- Animal nutrition - Maynard
- Principles of animal nutrition and feeds – Bane

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**II Year – Semester III**  
**2025-26 Admitted batch**  
**BASICS OF ANIMAL NUTRITION (Major – core)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3hrs**

**Maximum: 70marks**

**SECTION – A**

Answer any **FOUR** questions. Each question carries Five marks. (4\*5 =20)

1. What are the functions of Calcium, its deficiency symptoms.
2. Name the essential Amino Acids.
3. What are the functions of fats in the Animal Body? What are essential fatty acids?
4. What are soluble carbohydrates?
5. What are the Omega fatty acids?
6. Name the essential amino acids.
7. Name the minor minerals.

**SECTION – B**

Answer All the questions. Each question carries Ten marks (5\*10 =50)

1. A. Write about functions, deficiency symptoms and sources of fat-soluble vitamins.  
Or  
B. Classify feed ingredients and give one example to each category.
2. A. Describe about feeding of laying poultry.  
Or  
B. Discuss the role of water in the animal body system.
3. A. What are the different types of energy? Explain their importance  
Or  
B. Describe about different types of commercial pet foods.
4. A. What are agro industrial byproducts? Give five examples along with significance of each byproduct in animal nutrition.  
Or  
B. Importance of salt in the animal diet.
5. A. Write about different feed processing methods  
Or  
B. Explain the special consideration in the nutrition of ruminants and non-ruminants.

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**II Year – Semester III**  
**2025-26 Admitted batch**

**VETERINARY PUBLIC HEALTH AND FOOD SAFETY (Major – core)**  
**(Credits 3+1=4)**

**UNIT: 1**

HACCP: Hazard Analysis and Critical Control Point. Objectives of Implementing HACCP. Guidelines for the application of the HACCP system

**UNIT: 2**

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 mastitis or udder infections etc.

**UNIT: 3**

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

**UNIT: 4**

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 conditions or diseases and judgements during ante mortem and post mortem inspection.

**UNIT: 5**

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 hazard

**PRACTICALS**

1. Collection of samples for chemical and bacteriological examination.
2. Adulteration of milk & methods for detection of common adulteration in milk.
3. Methods for detection of common adulteration in milk products.
4. Tests for detection of mastitic milk.
5. Ante-mortem and post-mortem inspection of food animals

**Reference books:**

1. Textbook of elements of veterinary public health - A.T. Sherikar, V.N. Bachhil & D.C. Thapliyal

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**II Year – Semester III**  
**2025-26 Admitted batch**  
**VETERINARY PUBLIC HEALTH AND FOOD SAFETY (Major – core)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3hrs**

**Maximum: 70marks**

**SECTION – A**

Answer any **FOUR** questions. Each question carries Five marks.

(4\*5 =20)

1. What are the different spoilage microflora and spoilage conditions of milk?
2. Differentiate the synthetic milk from natural milk?
3. Write different abnormal conditions detected in meat?
4. Enlist different pathological conditions associated with transport of food animals?
5. Write about the emergency slaughter of animals?
6. What are the different adulterants used in milk? Explain method of detection for any two commonly used adulterants at field level.
7. What are the different disease conditions need to be observed during postmortem inspection of poultry?

**SECTION – B**

Answer **ALL** the questions. Each question carries ten marks

(5x10 =50)

- 1 A. Classify different types of food borne illness and describe about any meat borne disease?

or

B. What are the different sources of contamination in milk production. Describe about different steps involved in Clean milk production?

- 2 A. Enlist different methods for identification of fraudulent substitution of meat and explain in detail about any method?

or

B. Define HACCP? Write about the principles of HACCP.

- 3 A. What are the different occupational health hazards encountered by slaughter house workers and write in detail about the preventive measures.

or

B. Discuss in detail about different facilities required for ante mortem inspection. What are the different judgments given in ante mortem inspection.

- 4 A. Define one health and write about different components of one health.

or

B. Write in detail about the different methods for safe disposal of abattoir wastes.

5 A. What is the role of a veterinarian in promotion of public health?

or

B. Discuss in detail about different approaches you recommend a farmer regarding safe and hygienic production of animal-based foods (milk, meat & eggs) in your own words



**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**II Year – Semester III**  
**2025-26 Admitted batch**

**VETERINARY IMMUNOLOGY AND VACCINES (Major – core)**  
**(Credits 3+1=4)**

**UNIT - 1**

Types of Immunity, Antigen, types of antigens, blood group antigens, Factors determining antigenicity, Immunoglobulin (antibody)- structure of antibody, classes of immunoglobulins

**UNIT - 2**

Hypersensitivity: classification and mechanism of induction

**UNIT - 3**

Autoimmunity, Immunotolerance

**UNIT – 4**

Concept of Immunity to Microbes, Immunity to bacteria, immunity to fungi and virus, immunity to parasites

**UNIT - 5**

Vaccines- preparation, cold chain maintenance and handling, test for potency, types of vaccines

**Practicals:**

1. To attend vaccination programmes in field.
2. Vaccines – preparation and cold chain maintenance
3. Different types of vaccines – its advantages and disadvantages
4. ABO blood typing
5. Structure of Antibody
6. Types of antibodies

**Reference books:**

1. Veterinary Immunology - Ian R Tizard, Elsevier Science
2. Immunology: Basic Concepts and Applications - Y. Haribabu
3. Veterinary Immunology: Principles & Practice - Day, Manson Pub
4. Vaccines for Veterinarians - Ian R Tizard
5. Vaccine Science And Immunization Guideline - ROCKWELL P G, SPRINGER

**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**II Year – Semester III**  
**2025-26 Admitted batch**  
**VETERINARY IMMUNOLOGY AND VACCINES (Major – core)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3hrs**

**Maximum: 70marks**

**SECTION – A**

Answer any **FOUR** questions. Each question carries Five marks.

(4\*5 =20)

1. What are antibodies? Differentiate between antigen and antibody.
2. What are the functions of complement?
3. Mention different types of antigens.
4. Explain RH system and erythroblastosis fetalis.
5. Write in detail about biological barriers.
6. What are the differences between humoral and cell mediated immunity?
7. What is phagocytosis? Explain.

**SECTION – B**

Answer **all** questions. Each question carries **TEN** marks

(5\*10 =50)

1. A. Write about cardinal features of adaptive immune responses  
(or)  
B. What are different types of immunoglobulins. Write their functions in detail.
2. A. Write in detail about concept of immunity to microbes.  
(or)  
B. Write in detail about types of immunity.
3. A. What is an antigen. Write in detail about the factors determining antigenicity.  
(or)  
B. What is auto immunity? Write in detail the factors associated with auto immunity along with general characteristics and treatment of auto immune diseases.
4. A. What is vaccine. Write in detail about preparation, storage, safety and maintenance of vaccines  
(or)  
B. Write in detail about different types of vaccines.
5. A. Explain the structure of immunoglobulin.  
(or)  
B. What are the different types of hypersensitivity? Give one example for each.

**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**II Year – Semester III**  
**2025-26 Admitted batch**

**LIVESTOCK PRODUCTION AND MANAGEMENT (Minor)**  
**(Credits 3+1=4)**

**UNIT – 1**

Status of livestock in Vedic period, medieval period and modern period, Demographic distribution of livestock, Identification of animal

**UNIT – 2**

Transportation of livestock, Transportation of wild and zoo animals, Common farm animal management practices, Housing systems, Design of different buildings for livestock, General principles of the design and construction of livestock houses.

**UNIT -3**

General management and feeding practices of calves, heifers, pregnant, lactating and dry animals, bulls and working animals. Breeding schedule and management of ram and buck. Introduction to methods of drug administration.

**UNIT – 4**

Common vices of animals, their prevention and care. Animal holding and land holding patterns of India. Organic livestock production.

**UNIT – 5**

Judging and BSC for body parts of livestock, Preparation of animals for show  
Culling of animals, selection and purchase of livestock, Methods of milking and precautions.

**PRACTICALS:**

1. Familiarization with body points of animals.
2. Methods of identification (marking, tattooing, branding, tagging ).
3. Dentition and ageing of animals.
4. Preparation of animals for show and judging.
5. Selection and culling of animals.
6. Clipping, shearing, dipping, spraying and spotting sick animals.
7. Determination of body weight using different methods

**Reference books:**

- A Text Book of Livestock Production and Management - Shraddha Shrivastava, V.N.Gautam
- LIVESTOCK PRODUCTION MANAGEMENT - Dr. Nilotpal Ghsoh
- Livestock Production Management - NSR SASTRY, CK THOMAS
- Livestock Production - JAVED K, INTECH
- Livestock Production And Management - Pankaj Kumar Singh, Thakur,Krishna Shankar Rao
- Advances In Livestock Production Management - Sunil Kukar, Birendra Kumar, Misra And Manish Kumar

**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**II Year – Semester III**  
**2025-26 Admitted batch**  
**LIVESTOCK PRODUCTION AND MANAGEMENT (Minor)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3hrs**

**Maximum: 70 marks**

**SECTION – A**

Answer any **FOUR** questions. Each question carries Five marks. (4\*5 =20)

1. Describe the care and management of dry animals
2. What are the precautions to be followed while milking.
3. Explain the disinfection procedure of dairy farm and what are the various disinfectants used.
4. What are the common vices of animals. Explain any five vices in detail
5. Explain about feeding of calves.
6. What are the common vices of animals and how to prevent them.
7. What is quarantine? Explain in detail.

**SECTION – B**

Answer **All** the questions. Each question carries Ten marks (5\*10 =50)

1. A) What do u mean understand by organic livestock production? Write the considerations for organic livestock production.  

(or)

B) What is livestock show. Explain the procedure for conducting livestock show and judging of animals.
2. A) Describe the breeding schedule and management of ram and buck.  

(or)

B) What are the various methods of drug administration in livestock.
3. A) What are the various methods of identification of livestock.  

(or)

B) Describe the rules of transportation of livestock.
4. A) Write the various methods for disposal of carcass.  

(or)

B) Write about different housing systems of cattle and buffalo.
5. A) Explain in detail the procedure for culling of animals.  

(or)

B) Write in detail about selection of site for establishing a dairy farm

**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**II Year – Semester III**  
**2025-26 Admitted batch**

**AECC - CREATIVE WRITING/ BUSINESS WRITING IN ENGLISH**  
**(Credits 3+0=3)**

**As Per APSCHE**

**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**II Year – Semester III**  
**2025-26 Admitted batch**

**AECC - CREATIVE WRITING/ JOURNALISTIC WRITING IN MIL- TELUGU/ HINDI/  
SANSKRIT**  
**(Credits 3+0=3)**

**As Per APSCHE**

**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**II Year – Semester III**  
**2025-26 Admitted batch**

**INTRODUCTION TO PUBLIC ADMINISTRATION (Multi-disciplinary course)**  
**(Credits 2+0=2)**

**Unit: I**

1. Introduction to Public Administration - Woodrow Wilson - Definition and nature and scope of public administration - Significance - Distinction between public and private administration

**Unit: II**

2. All India Services - Central Services - State Services - Importance of All India Services UPSC & SPSCs Powers and Functions - NITI Aayog

**Unit: III**

3. Accountability of Administration in India - Legislative - Executive – Judiciary - Judicial Activism - E-Governance in India - Good Governance initiatives – Functions and roles of Administrators

References:

1. Public Administration by Awasthi & Maheswari
2. Indian Administration by Maheswari
3. Administrative Theories by Mohit Bhattacharya
4. Comparative Administration by Mohit Bhattacharya
5. Indian Government & Politics by B. L. Fadia

**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**II Year – Semester III**  
**2025-26 Admitted batch**

**PET AND ZOO ANIMAL MANAGEMENT (Skill enhancement course)**  
**(Credits 2+0=2)**

**UNIT – 1**

Important breeds of dogs and cats. Feeding of dogs, cats, deworming & vaccination schedule

Dog show: preparation for show, kennel clubs, important characteristics for judgment.

**UNIT – 2**

Utility of dogs- guarding, defence, patrolling, riot control, scouting, espionage, mine detection, tracking, guiding, hunting, races, retrieving rescue and other uses.

**UNIT – 3**

Conservation practices of wild life in India.

Basic principles of habitat and housing of various classes of wild zoo animals. 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.

**Reference books:**

1. Animal care - Kimberly Lord
2. Animal behaviour, welfare and management - Geoff Hosey
3. Dictionary of zoo biology and animal management - Paul A Rees
4. Small animal care and management - Dean warren



**ANDHRA UNIVERSITY**  
**B. Vocational course**  
**Dairying & Animal husbandry (Honours)**  
**II Year – Semester III**  
**2025-26 Admitted batch**  
**PET AND ZOO ANIMAL MANAGEMENT (Skill enhancement course)**  
**(Credits 2+0=2)**

**Model paper**

**Time: 1 ½ hrs**

**Maximum: 50marks**

**SECTION – A**

Answer any **FOUR** questions. Each question carries five marks. (4\*5 =20)

1. What are the various dog breeds used for guarding purpose. Explain their characteristic.
2. Explain the conservative practices of wild life in India
3. Explain the principles of feeding of pet dogs.
4. What is dog show. Explain the guidelines and procedure for conducting dog show.
5. Describe the management of a sanctuary.
6. Name the important cat breed and describe their characteristics.
7. Name some zoo animals and explain the basic principles of their habitat.

**SECTION – B**

Answer any three Questions. Each question carries ten marks (3\*10 =30)

1. List out the Dog breeds used for patrolling purpose. Explain their characteristics.
2. Explain in detail the feeding habits of captive animals.
3. Classify zoological parks. Name the zoological parks in India.
4. Name different toy breeds and describe their characteristics.
5. What are the various methods of restraining of captive animals.

**ANDHRA UNIVERSITY**  
**B. Vocational course**  
**Dairying & Animal husbandry - Honours**  
**II Year – Semester IV**  
**2025-26 Admitted batch**

<b>4<sup>th</sup> Semester</b>	1	Livestock products technology	Major – core	3+1=4
	2	Infectious diseases of livestock and poultry	Major – core	3+1=4
	3	Avian production and management	Major – core	3+1=4
	4	Dairy plant management	Minor	3+1=4
	5	Fundamentals of economics	Multi-disciplinary course	2+0=2
	6	Veterinarian in society	Skill enhancement course (SEC)	2+0=2
<b>Total</b>				<b>16+4=20</b>

**ANDHRA UNIVERSITY**  
**B. Vocational course**  
**Dairying & Animal husbandry - Honours**  
**II Year – Semester IV**  
**2025-26 Admitted batch**

**LIVESTOCK PRODUCTS TECHNOLOGY (Major – core)**  
**(Credits 3+1=4)**

**UNIT – 1**

Milk industry in India, Composition & Nutritive value of milk

Factors effecting composition of milk Physio-chemical properties of milk. Processing of milk. Packaging, transportation, storage and distribution of milk and milk products. Organic milk products.

**UNIT – 2**

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.

**UNIT - 3**

Prospect of meat industry in India. Nutritive value of meat. Conversion of muscle to meat. Preservation of meat and poultry; drying, salting, curing, smoking, chilling, freezing, canning, irradiation and chemicals. Ageing of meat.

**UNIT - 4**

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

**UNIT - 5**

Layout and management of rural, urban and modern 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. Evaluation, grading and fabrication of dressed carcasses

**PRACTICALS**

1. Visit to modern milk processing and milk products manufacturing plants.
2. Visit to slaughter houses or meat plants.
3. Sampling of milk. estimation of fat, solid not fat (SNF) and total solids.
4. Platform tests.
5. Detection of adulteration of milk.
6. Determination of efficiency of pasteurization.
7. Methods of ritual and humane slaughter, flaying and dressing of food animals including poultry.
8. Determination of meat yield, dressing percentage, meat bone ratio and cut up parts

**Reference books:**

- Text Book on Milk & Milk Products - Ranveer R C, Kamble, D K, Patange
- Milk and Milk Products - H. Varnam Alan
- Principle of Dairy Processing - Warner James N
- Outline of Dairy Technology - Sukumar De
- Modern Abattoir Practices & Animal Byproducts Technology – B.D.Sharma

**ANDHRA UNIVERSITY**  
**B. Vocational course**  
**Dairying & Animal husbandry - Honours**  
**II Year – Semester IV**  
**2025-26 Admitted batch**

**LIVESTOCK PRODUCTS TECHNOLOGY (Major – core)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3hrs**

**Maximum: 70marks**

**SECTION – A**

Answer any **FOUR** questions. **Each question carries Five marks.**

(4\*5 =20)

1. Write about organic milk and milk products
2. What is Standardization of milk write in detail.
3. Write about common defects of butter and their remedial measures.
4. Write in detail about nutritive value of meat.
5. Explain ageing of meat.
6. Write about evaluation and grading of carcass.
7. Explain salting, curing, freezing, canning.

**SECTION – B**

Answer **ALL** questions. Each question carries TEN marks

(5\*10 =50)

1. A. Write in detail about scope of Milk industry in India.  
(or)  
B. Write about packaging, transport, storage and milk and milk products.
2. A. Write down the procedure of preparation of milk products like ghee, paneer or channa, khoa, ice cream.  
(or)  
B. Write in detail about platform tests.
3. A. Write in detail about preservation of meat & poultry.  
(or)  
B. What is the procedure of Ante-mortem examination of meat animals. Write in detail.
4. A. What is Pasteurization of milk write in detail.  
(or)  
B. Write about packaging, transport, storage and milk and milk products.
5. A. Write in detail procedure of Post-mortem examination of meat animals.  
(or)  
B. Write about layout and management of rural, urban and modern abattoirs.

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**II Year – Semester IV**  
**2025-26 Admitted batch**

**INFECTIOUS DISEASES OF LIVESTOCK AND POULTRY (Major – core)**  
**(Credits 3+1=4)**

**UNIT - 1**

Etiology, symptoms, diagnosis and treatment of various Viral diseases of livestock, pets and poultry (Rinderpest, Foot & mouth, Infectious bovine Rhinotracheitis, Rabies, Blue tongue, Sheep and Goat pox, Peste des petes ruminants, Canine Distemper, Infectious Canine hepatitis, Canine parvo virus Avian influenza, Marek's disease, Infectious bronchitis and Ranikhet disease)

**UNIT - 2**

Etiology, symptoms, diagnosis and treatment of various Bacterial diseases of livestock, pets and poultry (Tuberculosis, Anthrax, Brucellosis, Haemorrhagic septicaemia (HS), Blackquarter (BQ), Leptospirosis, Salmonellosis Enterotoxaemia in sheep, Actinobacillosis and Actinomycosis)

**UNIT - 3**

Etiology, symptoms, diagnosis and treatment of various Parasitic diseases of livestock, pets and poultry (Amphistomiasis, Fasciolasis, Babesiosis, Theileriosis, Trypanosomiasis, Ascariasis, Coccidiosis in poultry, Canine heartworm disease Leishmaniosis and Tapeworm infestation)

**UNIT – 4**

Etiology, symptoms, diagnosis and treatment of various Fungal diseases of livestock, pets and poultry (Dermatophytosis, Candidiasis, Aflatoxicosis)

**UNIT – 5**

Etiology, symptoms, diagnosis and treatment of various Diseases caused by ectoparasites of livestock, pets and poultry (Diseases caused by Ticks, Mites, Lice, Fleas and Flies. Vector borne diseases of dogs). control infectious disease Outbreak systematically at field level.

**PRACTICALS**

1. Post mortem examination of different diseases and their interpretation.
2. Study of gross specimens of various organs pertaining to infectious and non- infectious diseases of domestic animals.
3. Study of various viral, bacterial, parasitic and fungal diseases of livestock, pets and poultry

**Books for reference**

1. Text book of preventive veterinary medicine - Dr. Amalendu Chakarvarthi
2. Infectious diseases of livestock - S.V. Pundit and V. V. Deshmukh
3. A Textbook Of Veterinary Special Pathology Infectious Diseases Of Livestock And Poultry 2005  
Edition by Vegad JL, IBDC Publishers
4. Advanced Pathology And Treatment Of Diseases Of Poultry - C D N Singh,
5. Poultry Diseases A Guide for Farmers and Poultry Professionals - Vegad J.

**ANDHRA UNIVERSITY**  
**B. Vocational course**  
**Dairying & Animal husbandry - Honours**  
**II Year – Semester IV**  
**2025-26 Admitted batch**  
**INFECTIOUS DISEASES OF LIVESTOCK AND POULTRY (Major – core)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3hrs**

**Maximum: 70marks**

**SECTION – A**

Answer any **FOUR** questions. **Each question carries Five marks.** (4\*5 =20)

1. Describe Etiology, Transmission, Symptoms and control of Foot and Mouth Disease.
2. Describe Etiology, Transmission, Symptoms and control of Blue tongue in sheep.
3. Write note on Ascariosis in calves.
4. Describe in detail about Trypanosomiasis (Surra) in large ruminants.
5. Enlist common Endoparasitic diseases of bovine and small ruminants
6. Write deworming schedule and prophylactic vaccinations calendar in large ruminants.
7. Write about symptoms of rabies in cattle and control.

**SECTION – B**

Answer **all** questions. Each question carries **TEN** marks (5\*10 =50)

1. A. Write a detailed note on Haemorrhagic septicaemia in buffaloes.  
(or)  
B. Narrate Brucellosis in cattle.
2. A. Write in detail about Theileriosis in cross breed cattle including prophylaxis  
(or)  
B. Write in detail about Babesiosis cattle including.
3. A. Explain Etiology, Symptoms, lesions, and control of Enterotoxaemia (ET) in sheep  
(or)  
B. Explain Etiology, Symptoms, lesions, and control of PPR in sheep & Goat.
4. A. Give classification of Antibiotics used in veterinary medicine.  
(or)  
B. Enlist common Deworming drugs and Ectoparasiticide used in veterinary medicine.
5. A. Narrate Etiology, Symptoms, post-mortem lesions and control of Ranikhet disease (ND) in poultry.  
(or)  
B. Explain how to control infectious disease Outbreak systematically at field level.

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**II Year – Semester IV**  
**2025-26 Admitted batch**

**AVIAN PRODUCTION AND MANAGEMENT (Major – core)**  
**(Credits 3+1=4)**

**UNIT – 1**

Scavenging system of management. Brooding management

**UNIT – 2**

Care and management of Layers. Care and management of Broilers

**UNIT -3**

Feeding management, Classification of Nutrients- Nutrient requirement and feeding systems, Additive and supplements.

**UNIT – 4**

Egg formation, Egg structure – Physical and Chemical composition., Incubation of eggs

**UNIT – 5**

Marketing of poultry and poultry products, General principles of poultry medication, Common diseases of poultry

**PRACTICALS**

1. Economic traits of broilers, Layers and breeders.
2. Housing and design of a poultry farm.
3. Poultry farm equipment.
4. Brooding arrangement in broiler farms.
5. Management of Poultry during summer, winter and Rainy season

**Reference books:**

- Manual on Avian Production and Management - Ghosh Nilotpai, IBDC
- Practical manual of avian production and management - Jadhav
- Handbook of Poultry Production and Management - M F Siddique
- Livestock Production Management - N S R sastry, C Kthomas
- Livestock Production - Javed k, intech



**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**II Year – Semester IV**  
**2025-26 Admitted batch**  
**AVIAN PRODUCTION AND MANAGEMENT (Major – core)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3hrs**

**Maximum: 70marks**

Answer any **FOUR** questions. Each question carries Five marks.

(4\*5 =20)

1. Describe the digestive system of chicken with diagram.
2. Indian poultry industry – give an over view.
3. Describe the brooding arrangements in farm.
4. Explain the principles of disease prevention and management.
5. Give the layout of a poultry shed. Explain the influence of environmental factors in poultry housing.
6. Give the outlines of poultry classification.
7. Describe the female reproductive system of poultry

**SECTION – B**

Answer **All** the questions. Each question carries Ten marks

(5\*10 =50)

1. A) Write in detail the incubation of eggs in poultry farm.  
(or)  
B) Principles of management of poultry during Summer, winter and rainy seasons.
2. A) Describe the structure of egg. Explain its physical and chemical composition.  
(or)  
B) explain marketing of poultry and poultry products.
3. A) Enlist common diseases of poultry. Write in detail the cause, source, symptoms and treatment of any 5 diseases.  
(or)  
B) Explain management of deep litter. How to control litter born diseases.
4. A) What are the nutrient requirements of layers and broilers. Describe various feeding systems.  
(or)  
B) What is cage system. What are the advantages and disadvantages of cage system.
5. A) Explain in detail the vaccination schedule of layer birds.  
(or)  
B) Explain in detail the formation of egg.

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**II Year – Semester IV**  
**2025-26 Admitted batch**

**DAIRY PLANT MANAGEMENT (Minor)**  
**(Credits 3+1=4)**

**UNIT - 1**

Dairy equipment for fluid milk processing – Introduction - The Dairy Plant - Milk Collection or Chilling Centre - Milk Reception and Storage - Pasteurizer and Sterilizer - Homogenizer and Centrifuges - Packaging and Filling - Clean-in-place (CIP) - Cleaning System.

**UNIT - 2**

Dairy equipment for products processing - Objectives – Introduction - Butter and Cheese Making Equipment - Ice-Cream Making Equipment - Evaporators and Dryers.

**UNIT - 3**

Ghee Making Equipment - Khoa Making Equipment - Dahi and Lassi Making Equipment - Paneer, Chana & Casein Making Equipment

**UNIT - 4**

Materials their characteristics and selection of equipment – Objectives – Introduction - Types of Materials - Properties of Materials - Corrosion and its Prevention - Choice of Materials - Milk Handling and Processing Equipment - Selection of Utilities

**UNIT - 5**

Preventive maintenance of dairy plants and machineries - Principles of Preventive Maintenance Development of Plant Maintenance Programme - Guidelines for Effective Lubrication - Care and Cleaning of SS Surface - Care of Pipes and Fittings - Maintenance of Rubber and Gaskets Dairy Building Sanitation Dairy effluent management.

**PRACTICALS:**

1. Visit to milk collection center Visit to milk chilling center.
2. Visit to various units of dairy plant.
3. Hands on training in preparation of various milk products.
4. Handling of different dairy equipment

**REFERENCE BOOKS:**

- Ahmad Tufail. (1990). Dairy Plant Systems Engineering. Kitab Mahal Publisher, Allahabad.
- Anantakrishnan. C.P. and Simha N.N. (1987). Dairy Engineering Technology and Engineering of Dairy Plant operation

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**II Year – Semester IV**  
**2025-26 Admitted batch**  
**DAIRY PLANT MANAGEMENT (Minor)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3hrs**

**Maximum: 70marks**

**Section - A**

Answer any **FOUR** questions. **Each question carries Five marks.**

(4\*5=20)

1. Describe factors for establishing a dairy plant.
2. Name the facilities available at the collection centre?
3. What are the time and temperature combinations of sterilization process?
4. What is the principle of centrifugation?
5. Explain the operation of churn.
6. Explain process difference in dahi and lassi making.
7. How do we prevent corrosion of metals?

**Section – B**

Answer **ALL** the questions. Each question carries TEN marks.

(5\*10=50)

1. A) What are the basic equipment used in a dairy plant?  
(or)  
B) Write various sections of a dairy plant.
2. A) Describe the differences between a separator and a clarifier.  
(or)  
B) Explain the working of a continuous freezer.
3. A) Explain the working of spray dryer used for milk.  
(or)  
B) Give the working of a homogenizer and explain what are the advantages of homogenization.
4. A) Explain the working of multipurpose process vat used for dahi making  
(or)  
B) Explain the equipment used for making ghee and khoa.
5. A) Distinguish between internal check-up and major overhaul.  
(or)  
B) Describe the importance of proper selection of dairy equipment.

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**II Year – Semester IV**  
**2025-26 Admitted batch**

**FUNDAMENTALS OF ECONOMICS (Multi-disciplinary course)**  
**(Credits 2+0=2)**

**UNIT I- BASIC CONCEPTS**

Meaning of Economics, Nature and Scope of Economics, Micro & Macro Economics meaning and difference.

**UNIT II- MICRO ECONOMIC CONCEPTS**

Theory of Demand and Supply, Meaning of utility, diminishing marginal utility; indifference curves analysis and consumers equilibrium; Production Function, Types of Costs and Revenue, Classification of Markets.

**UNIT III- MACRO ECONOMIC CONCEPTS**

Meaning - Concepts and measurement of National Income ; Definition of Money-Types and Functions ; Evolution and Functions of Central Bank, Commercial Banks; Meaning of Inflation-causes and Anti-inflationary policies, Monetary and Fiscal Policy.

**References:**

Ahuja H. L. Principles of Micro economics, S. Chand Limited, Delhi.  
Koutsoyiannis, A. (1990), Modern Microeconomics, Macmillan.  
Gupta, S.B, Monetary Economics, S Chand & Co, New Delhi.  
Dwivedi, D.N , Microeconomics-Theory & Applications, Pearson.  
Stonier, A.W & Hague, Douglas.C , A Text Book of Economic Theory, Pearson.  
Ackley, G , Macroeconomics: Theory And Policy, Macmillan, New York  
Dwivedi, D.N , Macroeconomics: Theory and Policy , Tata McGraw Hill Education  
Jhingan, M.L , Macroeconomics , Vrinda Publications, New Delhi.

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**II Year – Semester IV**  
**2025-26 Admitted batch**

**VETERINARIAN IN SOCIETY (Skill enhancement course)**  
**(Credits 2+0=2)**

**UNIT-1**

Man, animal and society, Client dealing, Client oriented approach to physical examination of animals, veterinary public health as component of society, Human animal bond.

**UNIT-2**

Veterinarians interaction with health, drug and food regulatory authorities.  
Social responsibilities of Veterinarians in public hospital and practice management  
Professional development. Prevention activities.

**UNIT-3**

Disaster management. Role of the Veterinary services in food safety. Role of Veterinarian in Natural calamities.

**References:**

<https://www.drvet.in/p/e-books.html>

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**II Year – Semester IV**  
**2025-26 Admitted batch**  
**VETERINARIAN IN SOCIETY (Skill enhancement course)**  
**(Credits 2+0=2)**

**Model paper**

**Time: 1 ½ hrs (90 minutes)**

**Maximum: 50marks**

**SECTION–A**

Answer any **FOUR** questions. Each question carries five marks.

(4\*5=20)

- 1) Write in detail about physical examination of an animal?
- 2) Name some veterinary institutes?
- 3) What are the food regulatory authorities?
- 4) What are the drug regulatory authorities?
- 5) What are the important components of client dealing?
- 6) Benefits of pets for people?
- 7) Write in detail about meat inspection?

**SECTION–B**

Answer any three Questions. Each question carries ten marks

(3\*10=30)

- 1) Write in detail about societal responsibilities of Veterinarians?
- 2) Define Public health? Discuss in detail about role of Veterinarian and Public health?
- 3) What are Natural calamities? Role of Veterinarian in Natural calamities?
- 4) Role of Veterinarian in food safety?
- 5) Write in detail about prevention activities before disaster seasons. And write down response activities also.

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**III Year – Semester V**  
**2025-26 Admitted batch**

<b>5<sup>th</sup> Semester</b>	1.	Fundamentals of Veterinary medicine	Major subject	3+1=4
	2.	Basics of Veterinary surgery	Major subject	3+1=4
	3.	Veterinary Gynaecology, Obstetrics and AI	Major subject	3+1=4
	4.	Veterinary Pharmacology	Minor subject	3+1=4
	5.	Veterinary clinical practice	Minor subject	3+1=4
	7.	Environmental education		2+0=2
<b>Total</b>				<b>20+6=26</b>

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**III Year – Semester V**  
**2025-26 Admitted batch**

**FUNDAMENTALS OF VETERINARY MEDICINE (Major – core)**  
**(Credits 3+1=4)**

**UNIT – 1**

History and scope of Veterinary Medicine, concept of animal diseases. Concepts of diagnosis, differential diagnosis, treatment and prognosis.

**UNIT – 2**

General systemic states - hyperthermia, hypothermia, fever, shock, allergy, oedema, coma.

**UNIT – 3**

Etiology, clinical manifestations, diagnosis, treatment of diseases of digestive system (Vomitions, simple indigestion, enteritis, colic), respiratory system (Anoxia, respiratory failure, aspiration pneumonia), cardiovascular system (pericarditis, congestive heart failure) and urinary system (Hematuria, urinary incontinence, acute renal failure)

**UNIT – 4**

Etiology, clinical manifestations, diagnosis, treatment of diseases of nervous system (Encephalitis, encephalomalacia), musculoskeletal system (Arthritis, synovitis, myopathy), haemopoietic system (Anemia), Blood Transfusions and skin (Dermatitis, pruritis/itching).

**UNIT – 5**

Deficiency diseases caused by deficiency of iron, copper, cobalt, zinc, manganese, selenium, calcium, phosphorus, magnesium, iodine, vitamin A, D, E, B complex, K and C.

**PRACTICALS**

1. Blood transfusion
2. Deficiency diseases caused by macro elements
3. Deficiency diseases caused by micro elements
4. Important systemic diseases

**References:**

Textbook of Clinical Veterinary Medicine - Amalendu Chakrabarti



**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**III Year – Semester V**  
**2025-26 Admitted batch**  
**FUNDAMENTALS OF VETERINARY MEDICINE (Major – core)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3hrs**

**Maximum: 70marks**

**SECTION – A**

Answer any **FOUR** questions. **Each question carries Five marks.** (4\*5 =20)

1. Write a note on scope of veterinary medicine
2. Write about concept of prognosis
3. Write in detail about dermatitis
4. Write in detail about Osteomalacia.
5. Explain urinary incontinence
6. Write in detail about hypovitaminosis A caused due to deficiency of vitamin A.
7. Write in detail about congestive heart failure.

**SECTION – B**

Answer **All** the questions. Each question carries TEN marks (5\*10 =50)

1. A) Write a detail concept of differential diagnosis.  
(or)  
B) Write a detailed about hypothermia and its management
2. A) Write in detail about classification and management of shock.  
(or)  
B) Explain coma in detail.
3. A) Write about simple indigestion its clinical findings and treatment.  
(or)  
B) Write in detail about aspiration pneumonia.
4. A) Write in detail about pericarditis.  
(or)  
B) Write in detail about acute renal failure.
5. A) What is anemia? What are different types of anemia? Write in detail about its etiology, symptoms and treatment.  
(or)  
B) List out deficiency diseases caused by macro minerals and explain in detail about any two deficiency diseases.

**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**III Year – Semester V**  
**2025-26 Admitted batch**

**BASICS OF VETERINARY SURGERY (Major – elective)**  
**(Credits 3+1=4)**

**UNIT - 1**

Introduction: Historical perspective, Definitions. classification of surgery. Tenets of Halsted.

**UNIT - 2**

History taking, physical examination. Pre-operative, intra-operative and post-operative considerations

**UNIT - 3**

Sterilization and disinfection: Definitions, surgical sterilization, various methods of sterilization (Physical, chemical and radiations), disinfections.

**UNIT - 4**

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.

**UNIT - 5**

Definitions, classification, diagnosis and treatment of abscess, tumour, cyst, hernia, haematoma, necrosis, gangrene, burn and scald, frost bite. Haemorrhage and Haemostasis. Fractures. Common surgical affections of cattle and dogs.

**PRACTICALS**

1. Introduction of common surgical equipment and instruments.
2. Suture materials, surgical knots and suture patterns.
3. Preparation of surgical patients.
4. Other operation theatre routines like preparation of theatre, Surgeon and surgical pack.
5. Bandaging and basic wound management
6. Control of haemorrhage

**Reference books:**

- A Textbook On Veterinary Surgery and Radiology -S.K. NANDI Essentials of Veterinary surgery - Venugopalan S
- Dollor's Veterinary surgery - Oconnor JJ
- Veterinary surgery - E R Frank
- Veterinary Surgery - Spencer A Johnston

**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**III Year – Semester V**  
**2025-26 Admitted batch**  
**BASICS OF VETERINARY SURGERY (Major – elective)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3hrs**

**Maximum: 70marks**

**SECTION – A**

Answer any **FOUR** questions. **Each question carries Five marks.** (4\*5 =20)

1. Halsted principles of surgery
2. What is an abscess and how it is differentiated from Cyst, Haematoma, Tumour and hernia.
3. Write in detail about preparation of patient before surgery?
4. Define sterilization? Write in detail about various methods of sterilization.
5. Write in detail about post operative care of animal.
6. Classify wounds? List out the factors responsible for delayed wound healing.
7. Explain various types of surgeries in animal practice.

**SECTION – B**

Answer **All** the questions. Each question carries TEN marks (5\*10 = 50)

- 1.a. Non absorbable synthetic suture materials  
(or)  
b. Explain the **FOUR** phases of wound healing.
2. a. Different methods of haemostasis  
(or)  
b. Write in detail about fractures and also classify them.
- 3.a Treatment for Burns  
(or)  
b. List out various surgical instruments and their uses.
- 4.a Write down various surgical affections of pelvic cavity of dog  
(or)  
b. What is hernia? Explain the procedure for operation of umbilical hernia.
- 5.a. Write down various surgical affections of abdominal cavity of cattle  
(or)  
b. Write in detail about absorbable suturing material

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**III Year – Semester V**  
**2025-26 Admitted batch**

**VETERINARY GYNAECOLOGY, OBSTETRICS AND AI (Major – elective)**  
**(Credits 3+1=4)**

**UNIT -1**

Oestrous cycle and factors affecting the length of the oestrous cycle, problems in oestrus detection and oestrus detection aids.

**UNIT -2**

Pathological affections of ovary, uterine tubes, uterus, cervix, vagina and external genitalia.

**UNIT -3**

Pregnancy diagnosis- Duration of pregnancy -Factors affecting gestation length.

**UNIT -4**

Forms of female and male infertility in bovines.

**UNIT -5**

Care and management of pregnant animals. Stages of parturition.  
Artificial insemination techniques in farm and pet animals

**PRACTICALS**

1. Rectal palpation technique for bovine reproductive organs
2. Estrus detection in farm animals
3. Obstetrical equipment and instruments
4. Vasectomy
5. Castration
6. Handling and maintenance of LN2 containers

**Reference books:**

- Veterinary obstetrics and genital diseases - Stephen J. Roberts
- Applied Veterinary Gynaecology and obstetrics - Dr. Pradeep Kumar
- Veterinary reproduction and obstetrics - Geoffrey H. Arthur
- Veterinary Reproduction and Obstetrics - David E. Noakes, Timothy J. Parkinson & Gary C. W.

**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**III Year – Semester V**  
**2025-26 Admitted batch**  
**VETERINARY GYNAECOLOGY, OBSTETRICS AND AI (Major – elective)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3hrs**

**Maximum: 70marks**

**SECTION – A**

Answer any **FOUR** questions. **Each question carries Five marks.**

(4\*5 =20)

1. Write in detail regarding factors effecting gestational length.
2. Explain regarding factors that influence puberty and sexual maturity.
3. Write about different techniques used for pregnancy diagnosis in animals.
4. Discuss in detail about Oestrus cycle in bovines.
5. Write about the pathological affections of ovary in cow?
6. Draw the diagram of female reproductive tract (Cattle).
7. Discuss about procedure of artificial insemination in cattle.

**SECTION – B**

Answer **All** the questions. Each question carries **TEN** marks

(5\*10 =50)

1. A) Write in detail about factors effecting gestation lenth.  
(or)  
B) Write about technique of vaginal exfoliative cytology in bitches.
2. A) Discuss about care and management of  
Pregnant animals  
(or)  
B) Explain about stages of parturition in cattle.
3. A) Discuss about estrus detection aids used for cattle.  
(or)  
B) Write about handling and maintenance of LN2 containers.
4. A) Discuss in detail regarding Impotentia generandi  
(or)  
B) Discuss in detail about the estrous cycle in bitches.
5. A) Discuss in detail about pathological affections of uterus?  
(or)  
B) Draw diagrams of different cells exposed during vaginal cytology in bitches.

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**III Year – Semester V**  
**2025-26 Admitted batch**

**VETERINARY PHARMACOLOGY (Minor)**  
**(Credits 3+1=4)**

**UNIT - 1**

Introduction, historical development, branches and scope of Pharmacology. Sources and nature of drugs. Pharmacological terms and definitions, nomenclature of drugs.

**UNIT - 2**

Principles of drug activity: Pharmacokinetics - Routes of drug administration, absorption, distribution, biotransformation and excretion of drugs.

**UNIT - 3**

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 - 4**

Classification of drugs. History, mechanism and stages of general anaesthesia. Inhalant, intravenous and dissociative anaesthetics.

**UNIT - 5**

Hypnotics and sedatives; psychotropic drugs, anticonvulsants, opioid analgesics, non-steroidal anti-inflammatory drugs, analeptics and other CNS stimulants. Local anaesthetics, muscle relaxants. Euthanizing agents.

Fluid therapy.

**PRACTICALS**

1. Handling and washing of laboratory wares.
2. Concept of good laboratory practices (GLP).
3. Principles of compounding and dispensing.
4. Pharmaceutical processes.
5. Pharmaceutical dosage forms.
6. Prescription writing, incompatibilities.

**Reference books:**

- Veterinary Pharmacology - Vallachira Aravindan
- Essentials Of Veterinary Pharmacology And Therapeutics - H S Sandhu

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**III Year – Semester V**  
**2025-26 Admitted batch**  
**VETERINARY PHARMACOLOGY (Minor)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3hrs**

**Maximum: 70marks**

**SECTION – A**

Answer any **FOUR** questions. **Each question carries Five marks.** (4\*5 = 20)

1. Write about muscle relaxants.
2. Describe in detail about different stages of general anaesthesia.
3. Write in brief about euthanizing agents.
4. Write a short note on anti tussives.
5. Describe in detail about antidiarrhoeal drugs.
6. Write a short note about bronchodilators
7. Write about non steroid anti- inflammatory drugs in detail.

**SECTION – B**

Answer All the questions. Each question carries TEN marks (5\*10 = 50)

1. a. Write about different routes of drug administration.  
(or)  
b. Write about different factors which effect drug action.
2. a. Classify intravenous anesthetics and local anesthetics.  
(or)  
b. Write about fluid therapy.
3. a. Explain in detail about adverse drug reactions.  
(or)  
b. Classify different types of purgatives.
4. a. Give classification of penicillins in detail.  
(or)  
b. Classify aminoglycosides in detail.
5. a. Write in detail about biotransformation and excretion of drugs.  
(or)  
b. Write in detail about drug and receptor, drug - dose response

**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**III Year – Semester V**  
**2025-26 Admitted batch**

**VETERINARY CLINICAL PRACTICE (Minor)**  
**(Credits 3+1=4)**

**UNIT -1**

Case history, Dehydration, Fluid therapy

**UNIT -2**

Acid indigestion, Alkaline indigestion, Impaction, Bloat, Bovine ketosis, Mastitis, Milk fever, White scours, Poisoning

**UNIT - 3**

Repeat breeding, Pyometra, Dystocia, Prolapse, Retention of placental membranes

**UNIT -4**

Wound management, Abscess, Maggot wound, Evisceration of eye balls, Medial patellar desmotomy, Horn amputation, Rumenotomy, C- section

**UNIT -5**

Preparation of animal for surgery, Post-surgical management

**PRACTICALS**

1. Sterilization
2. Concept of Diagnosis
3. Concept of Differential diagnosis
4. Metabolic diseases in large animals

**Reference books:**

1. Text book of clinical veterinary medicine - Dr.Amalendu chakravarthi
2. Small animal internal medicine - Ettinger
3. Large animal internal medicine - Bradford and Smith
4. Hand book for veterinary clinicians - Dr.A.U.Bhikane and Dr.S.B.Kawitkar
5. A hand book for veterinary physician - V.P. Sapre



**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**III Year – Semester V**  
**2025-26 Admitted batch**  
**VETERINARY CLINICAL PRACTICE (Minor)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3hrs**

**Maximum: 70marks**

**SECTION – A**

Answer any **FOUR** questions. **Each question carries Five marks.** (4\*5 =20)

1. Write short note on retention of placental membranes.
2. Write in detail about bloat.
3. Write about case history.
4. Write about poisoning in animals.
5. Discuss in detail about abscess.
6. Write about preparation of animal for surgery.
7. Discuss post surgical management.

**SECTION – B**

Answer **All** the questions. Each question carries **TEN** marks (5\*10 =50)

1. A. Write in detail about fluid therapy  
(or)  
B. Discuss medial patellar desmotomy
2. A. Write about mastitis, causes, clinical symptoms, diagnosis, treatment and prevention?  
(or)  
B. Write about acid digestion, causes, clinical symptoms, diagnosis, treatment?
3. A. Write about repeat breeding, causes, clinical symptoms, diagnosis, treatment?  
(or)  
B. Write about pyometra, causes, clinical symptoms, diagnosis, treatment
4. A. Write about milk fever, causes, clinical symptoms, diagnosis, treatment  
(or)  
B. Write about horn amputation in large animals
5. A. Write about prolapse, causes, clinical symptoms, diagnosis, treatment  
(or)  
B. Write in detail about wound.

**ANDHRA UNIVERSITY**  
**B. Vocational course**  
**Dairying & Animal husbandry - Honours**  
**III Year – Semester V**  
**2025-26 Admitted batch**

**ENVIRONMENTAL EDUCATION**  
**(Credits 2+0=2)**

**Unit 1: Environment and Natural Resources**

1. Multidisciplinary nature of environmental education; scope and importance.
2. Man as an integral product and part of the Nature.
3. A brief account of land, forest and water resources in India and their importance.
4. Biodiversity: Definition; importance of Biodiversity - ecological, consumptive, productive, social, ethical and moral, aesthetic, and option value.
5. Levels of Biodiversity: genetic, species and ecosystem diversity.

**Unit-2: Environmental degradation and impacts**

1. Human population growth and its impacts on environment; land use change, land degradation, soil erosion and desertification.
2. Use and over-exploitation of surface and ground water, construction of dams, floods, conflicts over water (within India).
3. Deforestation: Causes and effects due to expansion of agriculture, firewood, mining, forest fires and building of new habitats.
4. Non-renewable energy resources, their utilization and influences.
5. A brief account of air, water, soil and noise pollutions; Biological, industrial and solid wastes in urban areas. Human health and economic risks.
6. Green house effect - global warming; ocean acidification, ozone layer depletion, acid rains and impacts on human communities and agriculture.
7. Threats to biodiversity: Natural calamities, habitat destruction and fragmentation, over exploitation, hunting and poaching, introduction of exotic species, pollution, predator and pest control.

**Unit 3: Conservation of Environment**

1. Concept of sustainability and sustainable development with judicious use of land, water and forest resources; afforestation.
2. Control measures for various types of pollution; use of renewable and alternate sources of energy.
3. Solid waste management: Control measures of urban and industrial waste.
4. Conservation of biodiversity: In-situ and ex-situ conservation of biodiversity.
5. Environment Laws: Environment Protection Act; Act; Wildlife Protection Act; Forest Conservation Act.
6. International agreements: Montreal and Kyoto protocols; Environmental movements: Bishnois of Rajasthan, Chipko, Silent valley.

**Suggested activities to learner:**

1. Visit to an area to document environmental assets: river/ forest/ flora/fauna, etc.
2. Visit to a local polluted site-Urban/Rural/Industrial/Agricultural site.
3. Study of common plants, insects, birds and basic principles of identification.
4. Study of simple ecosystems-forest, tank, pond, lake, mangroves etc.
5. Case study of a Forest ecosystem or a pond ecosystem.

**Suggested text book:**

- Erach Barucha (2004) Text book of Environmental Studies for Undergraduate courses (Prepared for University Grants Commission) Universities Press.
- Purnima Smarath (2018) Environmental studies Kalyani Publishers, Ludhiana

**Reference books :**

- Odum, E.P., Odum, H.T. & Andrews, J. (1971) Fundamentals of Ecology. Philadelphia:Saunders.
- Pepper, I.L., Gerba, C.P. &Brusseau, M.L. (2011). Environmental and Pollution Science.Academic Press.
- Raven, P.H., Hassenzahl, D.M. & Berg, L.R. (2012) Environment. 8th edition. John Wiley & Sons.
- Singh, J.S., Singh, S.P. and Gupta, S.R. (2014) Ecology, Environmental Science and Conservation. S. Chand Publishing, New Delhi.
- Sengupta, R. (2003) Ecology and economics: An approach to sustainable development. OUP.
- Wilson, E. O. (2006) The Creation: An appeal to save life on earth. New York: Norton.
- Groom, Martha J., Gary K. Meffe, and Carl Ronald Carroll (2006) Principles of Conservation Biology. Sunderland: Sinauer Associates

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**III Year – Semester VI**  
**2025-26 Admitted batch**

7 <sup>th</sup> Semester	1	Laboratory diagnostic techniques	Major – elective	3+1=4
	2	Fodder production and conservation	Major – elective	3+1=4
	3	Animal genetics and breeding	Minor	3+1=4
	4	Animal welfare ethics and jurisprudence	Minor	3+1=4
	5	Semester Internship (Minimum of 180 hours (8 weeks) with 3 credits)		3
Total				12+7=19
Student is eligible for Exit option-2 with the award of Degree in respective discipline				

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**III Year – Semester VI**  
**2025-26 Admitted batch**

**LABORATORY DIAGNOSTIC TECHNIQUES (Major – elective)**  
**(Credits 3+1=4)**

**UNIT - 1**

Media – preparation of culture media. Common media used for bacterial and fungal cultures. Tissue cultures and applications of tissue cultures.

**UNIT -2**

Various stains and dyes used for diagnostic work. Different staining methods.

**UNIT - 3**

Sero-diagnostic techniques used for identification of antigen/antibody.

**UNIT - 4**

Preparation of permanent slides. Collection, preservation and dispatch of various materials for Laboratory examinations and forensic laboratory.

**UNIT - 5**

Examination of parasitic specimens. Examination of pathological specimens.  
Hematological examinations – blood sample preparation and evaluation.

**PRACTICALS**

1. Identification of glassware, and laboratory equipment.
2. Good laboratory safety practices.
3. Staining procedures for different specimens.
4. Preparation of permanent slides
5. Preparation of temporary slides
6. Preparation of museum specimens.

**Reference books:**

- Veterinary Laboratory Diagnosis - Chauhan RS
- Veterinary Laboratory Diagnosis - Sriraman
- Veterinary Technician's Handbook of Laboratory Procedures - Brianne Bellwood and Melissa Andrasik Catton, John Wiley
- Veterinary Laboratory Medicine Clinical Biochemistry and Hematology - Morag G. Kerr , John Wiley

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**III Year – Semester VI**  
**2025-26 Admitted batch**  
**LABORATORY DIAGNOSTIC TECHNIQUES (Major – elective)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3hrs**

**Maximum:70marks**

**SECTION – A**

Answer any **FOUR** questions. **Each question carries Five marks.**

(4\*5 =20)

1. What is media and write the classification of media.
2. Write about different staining methods.
3. Write about different media for fungal cultures.
4. List out common stains used in diagnostic works.
5. Write the preparation of smears.
6. Write in detail about hematological examination.
7. Explain complement fixation test.

**SECTION – B**

Answer **ALL** questions. Each question carries TEN marks

(5\*10 =50)

1. A. Write in detail the preparation of culture media and list out the commonly used media.  
(or)  
B. Explain in detail about tissue culture and its applications.
2. A. Define simple staining and differential staining and explain briefly about any 2 staining methods.  
(or)  
B. Write in detail about collection, preparation and dispatch of materials for laboratory examinations.
3. A. Write in detail about examination of parasitic specimens.  
(or)  
B. Explain examination of pathological specimens.
4. A. What are the different serodiagnostic techniques used for identification of antigen/antibody.  
(or)  
B. Explain in detail about preparation of permanent slides.
5. A. Write about collection and processing of specimens for clinical examination.  
(or)  
B. Explain in detail about how clinical and morbid materials are to be collected for laboratory examinations.

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**III Year – Semester VI**  
**2025-26 Admitted batch**

**FODDER PRODUCTION AND CONSERVATION (Major – elective)**  
**(Credits 3+1=4)**

**UNIT – 1**

Difference between fodder and forage, classification of forage based on season of cultivation, nutrient density in the dry matter, plant types, crop duration and plant family and duration of the crop. Plant sources of animal feed

**UNIT – 2**

Characteristics of fodder crops, cereal fodder - cereal fodder crops for irrigated condition, cereal fodder for rainfed condition, cereal fodder for hilly/temperate zone, cultivation methods. Grass fodders, grasses for irrigated conditions, choice of grasses for rainfed conditions, cultivation methods. Legumes, irrigated legumes – perennial, irrigated legumes – annual, legume fodders for rainfed conditions, rainfed legumes – perennial, rainfed legumes – annual, cultivation methods.

**UNIT – 3**

Fodders for silvipasture system Trees, Multi purpose tree species, Nutritive value of common tree leaves.

**UNIT - 4**

Conservation of fodder, silage, characteristics and various types of silo pits, Crops used for silage making, Steps in the preparation of forage for making silage, Advantages and disadvantages of silage, haylage and wastelage, hay, principles of hay making, requisites of good quality hay, Types of hay, advantages and disadvantages of hay, legume and non legume hay, steps in hay making, loss of nutrients in hay making, storage of hay, losses in storage, factors affecting feed value and deterioration.

**UNIT – 5**

Scarcity fodders - failed crops, crop residues, Vegetable crop residues, Non traditional plants, Plant oriented wastes, agro- industry wastes and other unconventional feeds, Vegetable and animal protein sources.

Agro- industry wastes and other unconventional feeds

**PRACTICALS:**

1. Cultivation methods of cereal fodders
2. Cultivation methods of grass fodders
3. Cultivation methods of legume fodders
4. Preparation of silo pits
5. Preparation of hay

**References:**

Production and Grassland Management for Veterinarians - D. V. Reddy  
Forages and Livestock Production - Pathak, N.N. and Jakhmola, R.C.

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**III Year – Semester VI**  
**2025-26 Admitted batch**  
**FODDER PRODUCTION AND CONSERVATION (Major – elective)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3hrs**

**Maximum: 70marks**

**SECTION – A**

Answer any **FOUR** questions. **Each question carries Five marks.** (4\*5 =20)

1. What is the importance of land preparation for fodder cultivation.
2. Explain different Plant sources of animal feed
3. Differentiate hay and silage along with the crops used for their preparation.
4. What are the crop residues commonly fed to animals? Why they are important?
5. Differentiate legumes and non-legumes along with examples. Explain in detail about their cultivation methods.
6. Explain the multi-tier systems for grassland development.
7. What are perennial fodder crops? What is their importance?

**SECTION – B**

Answer **All** the questions. Each question carries **TEN** marks (5\*10 =50)

1. a) Describe silage making in detail.  
Or  
b) Explain in detail various classifications of forages.
2. a) What are the advantages of hay making? Describe hay making methods in detail.  
Or  
b) Write in detail about the factors affecting feed value and deterioration.
3. a) Describe cereal fodder in detail.  
Or  
b) How to reduce fodder wastage during cultivation, harvest, transportation, storage and feeding.
4. a) What do you understand by scarcity fodder. Explain different types of scarcity fodders in detail.  
Or  
b) Write in detail about Agro- Industry wastes and other unconventional feeds
5. a) Describe the cultivation practices of legumes.  
Or  
b) Write about manures and fertilizers used for grass fodders



**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**III Year – Semester VI**  
**2025-26 Admitted batch**

**ANIMAL GENETICS AND BREEDING (Minor)**  
**(Credits 3+1=4)**

**UNIT - 1**

Introduction and importance of statistics and their functions. Definition, collection and classification of data. Presentation of data. Theory of sampling

**UNIT - 2**

Introduction to genetics, applications, history of genetics. Chromosome structure, numbers, Cell division- mitosis, meiosis, Gametogenesis- spermatogenesis, oogenesis.

**UNIT - 3**

Mendel's experiments, exceptions to Mendel's experiments, Modified mendelian inheritance, Multiple alleles, Sex linked inheritance, Crossing over

**UNIT – 4**

Mapping - Chromosome mapping, genetic map, Changes in genetic material- mutations, Gene concept.

**UNIT - 5**

Animal breeding – introduction, Selection, Systems of breeding- inbreeding, grading, crossbreeding, outcrossing. Economic traits and their importance

**PRACTICALS**

1. Monohybrid, Dihybrid cross and Multiple alleles.
2. Modified Mendelian inheritance and sex-linked inheritance.
3. Linkage and crossing over.
4. Demonstration of Karyotyping in farm animals.
5. Calculation of gene and genotypic frequencies
6. Factors causing change in gene frequency.

**Reference books:**

- Textbook of Animal Genetics and Breeding - Nada Ben Abdallah
- Text Book On Animal Genetics Breeding - H K B Paresh, P N Srivastava, B C Sarkhel
- Animal Genetics and Breeding - Dr Arun Kumar Tomar, DrRajbeer Singh
- Textbook Of Animal Breeding - Dr. S. S. Tomar
- Animal Breeding - Gerald Weiner
- Veterinary Genetics - F.W. Nicholas
- Genetics of Livestock Improvement - John F. Lasley
- Breeding and improvement of farm animal - Warwick, E.J. and Legates, J.E.

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**III Year – Semester VI**  
**2025-26 Admitted batch**  
**ANIMAL GENETICS AND BREEDING (Minor)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3hrs**

**Maximum: 70marks**

**SECTION – A**

Answer any **FOUR** questions. **Each question carries Five marks.** (4\*5 =20)

1. What are the economic traits in poultry and write their importance?
2. What is selection? Write in detail.
3. What are multiple alleles write in detail.
4. Draw neat diagram of structure of chromosome and explain
5. Write in detail about importance of statistics
6. What is theory of sampling write in detail.
7. Write down differences between mitosis and meiosis?

**SECTION – B**

Answer **All** the questions. **Each question carries Ten marks** (5\*10 =50)

1. A. Write in detail about collection, classification and presentation of data?  
Or  
B. Write in detail about history and applications of genetics?
2. A. What is cell division, write in detail about events of cell division with neat diagrams.  
Or  
B. What is gametogenesis? Write in detail about the process of spermatogenesis.
3. A. Write in detail about sex linked, sex influenced & sex-limited inheritance?  
Or  
B. Write in detail about linkage and crossing over?
4. A. Write in detail about chromosomal mapping  
Or  
B. Write in detail about mutations.
5. A. Write about the systems of breeding in detail.  
Or  
B. Write down the economic traits in cattle and their importance

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**III Year – Semester VI**  
**2025-26 Admitted batch**

**ANIMAL WELFARE ETHICS AND JURISPRUDENCE (Minor)**  
**(Credits 3+1=4)**

**UNIT – 1**

Animal welfare, why should we be concerned about animal welfare?, Different views of animal welfare, Duties of AWO(animal welfare officers), Role of veterinarians in animal welfare, Veterinarians and institutional animal ethics committees.

**UNIT – 2**

Animal ethics and sentience, Ethical decision making, Scientific evidence for animal sentience, Animal welfare organisations, Animal welfare board of India (AWBI), Acts and rules, Prevention of cruelty to animals (PCA) act, 1960, The committee for the purpose of control and supervision of experiments on animals (CPCSEA)

**UNIT – 3**

Sudden or unexpected death, Classification of Death, Chief signs of death, Assessing of timings of death, Examination of blood stains, Post –mortem examination of Vetero – legal case, Procedure for PM Examination, Examination of organs, Submission of specimens in suspected cases of poisoning, Collection and submission of specimens for Histopathological examination

**UNIT – 4**

Veterinary Jurisprudence, Some terminology, Indian courts, Classes of magistrates, Sentence which magistrates may pass, Evidence, Witness, Common offences against animals and laws related to these offences, Mischievous killing of animals

**UNIT – 5**

Livestock Insurance in India, How to proceed for insurance claim, Common malpractices in insurance claims, Principles of Veterinary Professional Code of Conduct and Professional Ethics, Duties of Veterinarians to their Clients and Patients, Frauds in the sale of livestock, Frauds in the sale of Milk, Frauds in sale of Ghee, Frauds in the sale of meat, Adulteration of food or drink.

**PRACTICALS:**

1. Visit to animal rescue centre.
2. Visit to animal birth control programme unit.
3. Guest lecture with police officer involved in confiscation of vehicles carrying out illegal transportation of animals.
4. Interaction with animal welfare activists.
5. Visit to Blue cross unit.
6. Visit to nearest SPCA (Society for prevention of cruelty to animals).

**REFERENCE BOOKS:**

- Study material of Post graduate diploma on animal welfare (PGDAW) – IGNOU
- Animal welfare ethics and Jurisprudence – Kirti Dua
- A practical approach to animal welfare laws – Noel Sweeney
- Veterinary Jurisprudence and post mortem – Ranum Dabas

**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**III Year – Semester VI**  
**2025-26 Admitted batch**  
**ANIMAL WELFARE - ETHICS AND JURISPRUDENCE (Minor)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3hrs**

**Maximum: 70marks**

**Section – A**

Answer any **FOUR** questions. **Each question carries Five marks** (4\*5=20)

1. Enlist common causes of sudden death in livestock.
2. Types of evidence.
3. Explain about common offences against the animals.
4. Write a note on Frauds in the sale of livestock.
5. Write a note on Frauds in the sale of meat.
6. Write note on Bestiality
7. Types of witness.

**Section – B**

Answer **All the questions**. **Each question carries TEN marks** (5\*10=50)

1. A. Write a detailed note on role of Animal Welfare Organizations.  
(or)  
B. Discuss about Common malpractices in livestock insurance claims.
2. A. Write in detail about procedure and guidelines of conducting post - mortem examination in vetero legal cases.  
(or)  
B. Write about various types of wounds in animals.
3. A. Role of Veterinarian in Animal Welfare.  
(or)  
B. Duties of Veterinarians to their Clients and Patients.
4. A. Discuss about Common offences against animals and laws related to these offences.  
(or)  
B. Write about procedure for livestock insurance claim.
5. A. Discuss about Frauds in the sale of milk.  
(Or)  
B. Discuss in detail about PCA Act.

**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**III Year – Semester VI**  
**2025-26 Admitted batch**  
**(Credits 3)**

**Semester Internship (Minimum of 180hours (8Weeks) with 3 credits)**

**ANDHRA UNIVERSITY****B. Vocational Course****Dairying & Animal husbandry - Honours****IV Year – Semester VII****2025-26 Admitted batch**

<b>7<sup>th</sup> Semester</b>	1.	General pathology	Major – core	3+1=4
	2.	Veterinary general bacteriology	Major – core	3+1=4
	3.	Veterinary general parasitology and helminthology	Major – core	3+1=4
	4.	Andrology and Artificial insemination	Major – elective	3+1=4
	5.	Poultry farming	Major – elective	3+1=4
	6.		Open online transdisciplinary course	2+0=2
	7.		Indian knowledge system-Audit course	-
<b>Total</b>				<b>17+5=22</b>

**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**IV Year – Semester VII**  
**2025-26 Admitted batch**

**GENERAL PATHOLOGY (Major – core)**  
**(Credits 3+1=4)**

**UNIT – 1**

Introduction to pathology, Etiology - Major intrinsic and extrinsic causes of disease, mode of transmission, mechanism of defence.

**UNIT – 2**

Cell in health and disease – degenerations, necrosis, gangrene, rigor mortis  
Disturbances in growth (Aplasia, hypoplasia, atrophy, hypertrophy, hyperplasia, metaplasia and dysplasia).

**UNIT – 3**

Inflammation: Definitions, classification, various cell types and their functions, mediators, cardinal signs and systemic effects.

Healing – healing of wound – factors affecting wound healing, healing of special tissues.

Fever – its causes and pathogenesis of fever

**UNIT – 4**

Circulatory disturbances – hyperemia / congestion, haemorrhage, infarction, oedema and burns

**UNIT – 5**

Neoplasms -Definitions, general characteristics and classification of neoplasms. Differences between benign and malignant tumours. various types of tumours in domestic animals.

**PRACTICALS:**

1. Growth disturbances
2. Haemorrhage
3. Neoplasms
4. Post mortem examination of different species of animals.
5. Writing of post mortem report.

**REFERENCE BOOKS:**

- Veterinary Pathology 6th Ed. (2003) - Ganti Sastri and Rama Pao.
- Textbook of Veterinary General Pathology 2nd Ed. - J. L. Vegad



**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**IV Year – Semester VII**  
**2025-26 Admitted batch**  
**GENERAL PATHOLOGY (Major – core)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3hrs**

**Maximum: 70marks**

**SECTION – A**

Answer any **FOUR** questions. **Each question carries Five marks.**

(4\*5 =20)

1. write in detail about transmission of etiological agents?
2. write about classification of inflammation?
3. what are different types of necrosis?
4. what are various factors affecting wound healing?
5. write a note on infarction?
6. write about different epithelial tumors?
7. write a short note on burns?

**SECTION – B**

Answer **All** the questions. Each question carries **TEN** marks

(5\*10 =50)

1. A) Explain defence mechanism by which animals are able to protect themselves from infection / disease.

(or)

B) Define inflammation? Write in detail about inflammation.

2. A) Explain healing in detail

(or)

B) Define fever? Write in detail pathogenesis of fever?

3. A) Explain in detail about haemorrhage?

(or)

B) Define oedema and explain in detail.

4. A) Explain in detail about Neoplasms

(or)

B) what is Embolism? What are various sources and varieties of emboli?

5. A) Explain in detail Rigor mortis?

(or)

B) Write in detail about Atropy?

**ANDHRA UNIVERSITY**  
**B. Vocational course**  
**Dairying & Animal husbandry - Honours**  
**IV Year – Semester VII**  
**2025-26 Admitted batch**

**GENERAL VETERINARY BACTERIOLOGY (Major – core)**  
**(Credits 3+1=4)**

**UNIT – 1**

History of Microbiology – Introduction, Theories of Microbiology, History of developments and Divisions of Microbiology.

**UNIT – 2**

Classification of organisms, Morphology of bacteria – bacterial cell structure, structure of cell wall, structures external to cell wall, structures internal to cell wall

Cell wall – introduction, structure and chemical composition, structure of gram positive and gram negative bacteria.

**UNIT – 3**

Nutritional requirements of bacteria, Bacterial growth and cultivation – Reproduction and growth, growth curve. Distribution of bacteria – source of infection, transmission, portals of entry. Microorganisms and hosts, Toxins – characteristics.

**UNIT – 4**

Bacterial Genetics – Bacterial mutations, Methods of gene transfer, and plasmids.

**UNIT – 5**

Classification and Nomenclature of Bacteria – Methods used for classification, Nomenclature.

**PRACTICALS**

1. Developments in microbiology
2. Structure of Bacterial cell wall
3. Growth Curve
4. Media and different types of media
5. Media used for bacterial cultures

**References:**

Essentials of Veterinary Bacteriology and Mycology - G. R. Carter, Darla J. Wise  
Veterinary Microbiology – B.K. Markey  
Text book of veterinary Microbiology – Prof. S N Sharma and Dr. S C Adlakha

**ANDHRA UNIVERSITY**  
**B. Vocational course**  
**Dairying & Animal husbandry - Honours**  
**IV Year – Semester VII**  
**2025-26 Admitted batch**  
**GENERAL VETERINARY BACTERIOLOGY (Major – core)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3hrs**

**Maximum: 70 marks**

**SECTION–A**

Answer any **FOUR** questions. **Each question carries Five marks.** (4\*5=20)

1. Write a short note on Plasmids
2. What are Mutagens?
3. Write differences between Exotoxins and Endotoxins?
4. What are cultural characteristics of Bacteria?
5. Write in detail about nutritional requirements of bacteria?
6. Explain structure of endospore with labelled diagram?
7. Distinguish between structure of cell wall of gram positive and gram negative bacteria?

**SECTION–B**

Answer All the questions. Each question carries **TEN** marks (5\*10=50)

1. A) Draw a neat diagram of bacterial cell structure and explain morphology based on shape?  
(or)  
B) Explain Theories of Microbiology in detail
2. A) Write in detail about structures internal to cell wall?  
(or)  
B) Write in detail about structures external to cell wall?
3. A) what are various methods used in classification of bacteria and write in detail classification of bacteria  
(or)  
B) Explain Bacterial Recombination.
4. A) Define the term Mutation? write in detail about Mutations.  
(or)  
B) What are different portals of entry? Explain source of infection and transmission.
5. A) Explain in detail Measurement of Bacterial Growth.  
(or)  
B) Explain Bacterial growth curve with the help of diagram.

**ANDHRA UNIVERSITY**  
**B. Vocational course**  
**Dairying & Animal husbandry - Honours**  
**IV Year – Semester VII**  
**2025-26 Admitted batch**

**VETERINARY GENERAL PARASITOLOGY AND HELMINTHOLOGY (Major – core)**  
**(Credits 3+1=4)**

**UNIT – 1**

Introduction to parasitology, history of parasitology, animal associations – commensalism, mutualism, phoresis, predation and parasitism, nomenclature of parasites, standardized nomenclature of animal parasitic disease (SNOAPAD), definitions of various types of parasites (endoparasite, ectoparasite, mesoparasite, obligatory and facultative parasite, accidental parasite, temporary and permanent parasite, aberrant parasite, zoonotic parasite, histozoic parasite, coelozoic parasite, monoecious parasite, dioecious parasite, oviparous parasite, viviparous parasite, ovo-viviparous parasite).

**UNIT – 2**

Types of host (type host, definitive host, Intermediate host, paratenic host, vector, carrier host, reservoir host), types of life cycle (simple, complex, direct, indirect), prepatent period, patent period, general characteristics of parasites with characteristics of various phylum, various natural modes of infection of different types of parasites in definitive host. Biotic potential of parasites, harmful effects of parasites on their hosts. General principles of prevention and control of parasitic diseases. Anti-parasitic drugs.

**UNIT – 3**

Introduction to veterinary helminthology, Life cycle, pathogenesis, diagnosis treatment and control of trematodes – *Dicrocoelium dendriticum*, *Fasciola hepatica* and *Fasciola gigantica*, *Paramphistomum cervi*, *Schistosoma indicum* and *Schistosoma nasalis*.

**UNIT – 4**

Life cycle, pathogenesis, diagnosis treatment and control of cestodes – *Taenia saginata* and *Taenia solium*, *Moniezia expansa* and *Moniezia benedeni*, *Davainea proglottina*, *Dipylidium caninum*.

**UNIT - 5**

Life cycle, pathogenesis, diagnosis treatment and control of nematodes – *Ascaris suum*, *Toxocara canis*, Visceral larval migrans (VLM), *Ascaridia galli*, *Oesophagostomum venulosum*, *Ancylostomum caninum*, *Haemonchus contortus*, *Dirofilaria immitis*

**PRACTICALS:**

- Faecal examination techniques, egg counts, examination of faecal samples for the trematode, cestode, nematode eggs and protozoan cysts or oocysts or trophozoites.
- Methods of collection, fixation, preservation, staining and mounting of various types of parasites.
- Methods of calculation of median lethal dose (LD50) or maximum tolerated dose (MTD).

- Examination of urine samples and nasal washings for parasitic findings.
- Demonstration of gross and microscopic lesions of parasites.

**References:**

- Helminths, Arthropods and Protozoa of Domesticated Animals - E.J.L. Soulsby.
- Veterinary Parasitology - G.M. Urquhart et. al.
- A Text Book of Veterinary Parasitology - B.B. Bhatia, K.M.L. Pathak. & D.P.Banerjee

**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**IV Year – Semester VII**  
**2025-26 Admitted batch**  
**VETERINARY GENERAL PARASITOLOGY AND HELMINTHOLOGY (Major – core)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3hrs**

**Maximum: 70marks**

**SECTION – A**

Answer any **FOUR** questions. **Each question carries Five marks.** (4\*5 =20)

1. Explain different types of host.
2. Differentiate trematodes and cestodes
3. Nasal schistosomosis
4. Write a note on measly pork and measly beef.
5. Explain briefly about pimply gut.
6. Explain in detail the pathogenesis and clinical signs of *Dipylidium caninum*.
- 7 Write a short note on Visceral Larval Migrants.

**SECTION – B**

Answer **All** the questions. Each question carries **TEN** marks (5\*10 =50)

1. A) Explain in detail various types of animal association.  
(or)  
B) Explain in detail different modes of infection of different types of parasites.
2. A) Explain various harmful effects of parasites on their host.  
(or)  
B) What are the general principles of prevention and control of parasitic diseases.
3. A) Write the life cycle, pathogenesis, clinical signs, diagnosis, treatment and control of *Fasciola hepatica*.  
(or)  
B) Explain in detail about immature Paramphistomosis in domestic ruminants
4. A) Describe in detail about the Tapeworm infection in ruminants.  
(or)  
B) Write the lifecycle, clinical signs, diagnosis, treatment and control of *Toxocara canis*.
5. A) Explain Write the lifecycle, clinical signs, diagnosis, treatment and control of *Haemonchus contortus*.  
(or)  
B) Write in detail about hookworm infection in Canines.

**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**IV Year – Semester VII**  
**2025-26 Admitted batch**

**ANDROLOGY AND ARTIFICIAL INSEMINATION (Major – elective)**  
**(Credits 3+1=4)**

**UNIT – 1**

Study of male reproductive system, puberty, factors affecting puberty, endocrinology of male reproduction, sexual behavior in male animals, infertility in male animals – Impotentia coeundi (diseases of penis and prepuce), Impotentia generendi associated with normal and abnormal semen production. Sexual behaviour of male animals.

**UNIT - 2**

Introduction to artificial insemination, history of AI, advantages and disadvantages of AI, techniques for collection of semen in bulls, stallion, rams, bucks, boars and dogs, factors affecting semen production. AI techniques.

**UNIT - 3**

Semen evaluation – introduction, precautions to be taken, different tests, macroscopic evaluation of semen for volume, colour, viscosity, density, presence of foreign materials and gross motility. Microscopic evaluation of semen for mass activity, individual motility, sperm concentration, live and dead sperms, sperm abnormality, acrosome integrity.

**UNIT - 4**

Extension of semen, preservation of semen at ambient and refrigeration temperatures, semen dilution, deep freezing of semen, AI techniques using chilled and frozen semen, storage and transport of semen.

**UNIT - 5**

Planning and Organisation of semen collection and artificial insemination center, selection, care, training, management of bulls. Record keeping for andrology and AI, cleaning and sterilization of AI equipment and their uptake

**Practical:**

1. Visit to Semen bank
2. Microscopic tests for evaluation of semen
3. Macroscopic tests for evaluation of semen
4. Preparation of semen straw
5. Preparation of extenders
6. AI technique

**References:**

Veterinary Andrology And Artificial Insemination (Pb 2019) - Saxena M. S.

**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**IV Year – Semester VII**  
**2025-26 Admitted batch**  
**ANDROLOGY AND ARTIFICIAL INSEMINATION (Major – elective)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3hrs**

**Maximum: 70marks**

**SECTION – A**

Answer any **FOUR** questions. **Each question carries Five marks.** (4\*5 =20)

1. Write a short note on thermoregulation of testes.
2. Explain about accessory glands of dog.
3. Explain in detail about diseases of penis and prepuce
4. Write a short note on storage of semen.
5. Write in detail about thawing of semen straw.
6. Explain about cleaning of AI equipment
7. Explain about the deep freezing of semen straws

**SECTION – B**

Answer **All** the questions. Each question carries **TEN** marks (5\*10 =50)

1. A) Explain the factors affecting puberty in male animals.  
(or)  
B) Explain in detail about various components of copulatory patterns in male domestic animals.
2. A) Explain in detail about various sperm cell defects  
(or)  
B) What are the advantages and disadvantages of Artificial Insemination?
3. A) Explain in detail about collection of semen in bulls.  
(or)  
B) Explain in detail about factors affecting semen production.
4. A) Describe in detail about recto vaginal method of AI.  
(or)  
B) Explain care and management of bulls for semen production.
5. A) Explain in detail about precautions to be taken while handling Liquid nitrogen containers.  
(or)  
B) Write in detail about artificial vagina method of semen collection.



**ANDHRA UNIVERSITY**  
**B. Vocational course**  
**Dairying & Animal husbandry - Honours**  
**IV Year – Semester VII**  
**2025-26 Admitted batch**

**POULTRY FARMING (Major - Elective)**  
**(Credits 3+1=4)**

**UNIT -1**

**ORGANIC FARMING** - Introduction, principles of organic farming, aims of organic production, conditions for certified organic production, mandatory requirements for layers, recommended practices for production of organic eggs or meat.

**UNIT – 2**

**QUAIL FARMING** – Introduction, housing and feeding management of quails, general management of quails, breeding management, diseases, challenges in quail farming, license requirement for quail farming.

**UNIT – 3**

**TURKEY FARMING** -Breeds of turkeys in India, Economic Parameters in Turkey Farming General turkey management, Turkey rearing systems, Floor, feeder and waterer space requirement of turkey, Care to be taken while rearing Turkeys, Feeding management of turkeys, Breeding practices, Common Diseases of Turkey and their prevention, Turkey meat and egg.

**UNIT – 4**

**EMU FARMING** - Introduction to Emu farming, Management of emu birds, Breeder management, Feeding management of emu bird, Health management of emu birds.

**UNIT -5**

**DUCK FARMING** – Duck breeds, systems of duck management, Duck feeds and Feeding, management of Stock, Duck egg incubation, Common Duck diseases.

**MIXED FARMING AND POULTRY REARING** – Introduction, poultry and fish farming, poultry integration with cropping systems and agroforestry, duck -cum- fish farming, Benefits of mixed farming.

**PRACTICALS**

Desi – chicken breeds

Improved breeds of poultry

Turkey breeds

Duck Breeds

**References:**

- Manual on Avian Production and Management - Ghosh Nilotpal, IBDC
- Practical manual of avian production and management - Jadhav
- Handbook of Poultry Production and Management - M F Siddique
- Livestock Production Management - N S R sastry, C K Thomas

**ANDHRA UNIVERSITY**  
**B. Vocational course**  
**Dairying & Animal husbandry - Honours**  
**IV Year – Semester VII**  
**2025-26 Admitted batch**  
**POULTRY FARMING (Major - Elective)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3hrs**

**Maximum: 70marks**

**SECTION–A**

Answer any **FOUR** questions. **Each question carries Five marks.** (4\*5=20)

1. Write a short note duck – cum fish farming?
2. What are the conditions for certified Organic farming?
3. What are various breeds of ducks?
4. Write in detail about license requirement for quail farming?
5. Explain economic parameters of turkey farming?
6. What are the advantages of quail farming?
7. Write in detail about Turkey rearing systems?

**SECTION–B**

Answer **All** the questions. Each question carries **TEN** marks (5\*10=50)

1. A) Write in detail about organic farming for production of meat and eggs?  
(or)  
B) Explain breeder management of Emu birds?
2. A) Write in detail about Mixed farming and Poultry raising?  
(or)  
B) Write in detail recommended practices in Organic Farming?
3. A) Write in detail about common Duck Diseases?  
(or)  
B) Write in detail about quail farming?
4. A) Explain in detail Breeding practices in Turkey farming?  
(or)  
B) Write in detail about Duck feeds and feeding?
5. A) Explain in detail management of stock in ducks and incubation of eggs?  
(or)  
B) Write about Turkey egg and meat? Explain care to be taken in turkey rearing?

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**IV Year – Semester VIII**  
**2025-26 Admitted batch**

<b>8<sup>th</sup> Semester</b>	1.	Veterinary toxicology	Major - core	3+1=4
	2.	Avian pathology	Major - core	3+1=4
	3.	Veterinary protozoology	Major - core	3+1=4
	4.	Animal birth control programme	Major Elective	3+1=4
	5.	Hatchery management and biosecurity measures	Major Elective	3+1=4
	6.		Open online transdisciplinary course	2+0=2
	7.		Indian knowledge system-Audit course	-
<b>Total</b>				<b>17+5=22</b>

**ANDHRA UNIVERSITY**  
**B. Vocational Course**  
**Dairying & Animal husbandry - Honours**  
**IV Year – Semester VIII**  
**2025-26 Admitted batch**

**VETERINARY TOXICOLOGY (Major - core)**  
**(Credits 3+1=4)**

**UNIT – 1**

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.

**UNIT – 2**

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

**UNIT – 3**

Poisonous plants: Cyanogenetic plants, Abrus, ipomoea, Datura, Nux vomica, castor, oxalate producing plants, plants causing thiamine deficiency, plants causing photosensitization and cotton.

**UNIT – 4**

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

**UNIT - 5**

Fungal and bacterial toxins: Aflatoxins, Rubratoxin, ochratoxin, botulinum toxin and tetanus toxin. Venomous bites and stings: Snake, scorpion, spider, bees and wasp, toad and fishes. Toxicity caused by food additives and preservatives. Drug and pesticide residue toxicology.

**PRACTICALS:**

- Collection, preservation and dispatch of material for toxicological analysis.
- Detection of heavy metals or non-metals or 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).

**REFERENCE BOOKS:**

- Text book of Veterinary Toxicology - Sandhu, H.S. and Brar, R.S.,
- Veterinary pharmacology and toxicology - B. K. Roy
- Synopsis of veterinary pharmacology and toxicology - Vani prasad

**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**IV Year – Semester VIII**  
**2025-26 Admitted batch**  
**VETERINARY TOXICOLOGY (Major - Core)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3hrs**

**Maximum: 70marks**

**SECTION – A**

Answer any **FOUR** questions. **Each question carries Five marks.**

(4\*5 =20)

1. Write in detail the about classification of toxicity
2. Write a note on Blind staggers and alkali disease.
3. Write a note on mechanism of toxicity of nitrites
4. Write a note on oxalate containing plants.
5. Write a short note rubratoxins.
6. Write a note on ivermectin and milbemycin.
7. Write a short note on ANTU.

**SECTION – B**

Answer **All** the questions. Each question carries **TEN** marks

(5\*10 =50)

1. A) Explain in detail the factors modifying toxicity  
(or)  
B) Explain in detail the treatment of toxicity.
2. A) Write the sources, factors affecting toxicity, absorption, consequences, clinical symptoms, post-mortem lesions, diagnosis and treatment of arsenic poisoning.  
(or)  
B) Describe in detail the patho-physiology of Iron toxicosis.
3. A) Write the sources, factors affecting toxicity, absorption, consequences, clinical symptoms, post-mortem lesions, diagnosis and treatment of cyanide poisoning.  
(or)  
B) Explain in detail about photosensitization.
4. A) Write the toxicokinetics, mechanism of action, clinical symptoms, PM lesions, diagnosis and treatment of aflatoxin poisoning.  
(or)  
B) Write a detail note on organophosphorus compounds.
5. A) Explain in detail about warfarin.  
(or)  
B) Write in detail about industrial toxicants and occupational hazards.

**ANDHRA UNIVERSITY**  
**B. Vocational course**  
**Dairying & Animal husbandry - Honours**  
**IV Year – Semester VIII**  
**2025-26 Admitted batch**

**AVIAN PATHOLOGY (Major - Elective)**  
**(Credits 3+1=4)**

**UNIT – 1**

Viral Diseases: Etiology, Pathogenesis, clinical findings, gross and microscopic lesions and diagnosis of Ranikhet disease, infectious bursal disease, infectious bronchitis, fowl pox, Avian Influenza, Marek's disease, egg drop syndrome.

**UNIT - 2**

Bacterial Diseases: Etiology, Pathogenesis, clinical findings, gross and microscopic lesions and diagnosis of infectious coryza, clostridial diseases, salmonella infections, fowl cholera and Colibacillosis

**UNIT – 3**

Etiology, Pathogenesis, clinical findings, gross and microscopic lesions and diagnosis of Mycoplasma infections, chlamydiosis.

**UNIT- 4**

Etiology, Pathogenesis, clinical findings, gross and microscopic lesions and diagnosis of aspergillosis, thrush, favus and aflatoxicosis.

**UNIT -5**

Etiology, Pathogenesis, clinical findings, gross and microscopic lesions of protozoal diseases (coccidiosis, Histomoniasis), ectoparasites, Pathology of important vices and miscellaneous conditions.

**PRACTICALS**

1. Post mortem examination and diagnosis of poultry diseases based upon clinical signs and gross lesions
2. Writing of postmortem report.
3. Collection, preservation and dispatch of morbid materials in poultry diseases. Clinical examination of blood, faeces and other tissues/fluids for poultry disease diagnosis

**References:**

- A Textbook of Veterinary Special Pathology, Infectious Diseases of Livestock and Poultry - J.L Vegad and A.K Katiyar
- Veterinary Pathology 6th Ed. (2003) - Ganti Sastri and Rama Pao.
- Textbook of Veterinary General Pathology 2nd Ed. - J. L. Vegad

**ANDHRA UNIVERSITY**  
**B. Vocational course**  
**Dairying & Animal husbandry - Honours**  
**IV Year – Semester VIII**  
**2025-26 Admitted batch**  
**AVIAN PATHOLOGY (Major - core)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3hrs**

**Maximum: 70marks**

**SECTION–A**

Answer any **FOUR** questions. **Each question carries Five marks.** (4\*5=20)

1. Write a short note on ectoparasites in poultry?
2. What are various vices of poultry?
3. Write in detail about fowl typhoid?
4. What is aflatoxicosis?
5. Explain in detail about pathogenesis of coccidiosis?
6. What are clinical findings in salmonella infections?
7. Write a short note on egg drop syndrome?

**SECTION–B**

Answer All the questions. Each question carries **TEN** marks (5\*10=50)

1. A) Explain in detail etiology, pathogenesis, clinical findings, gross lesions and diagnosis of Ranikhet disease?  
(or)  
B) Write in detail about Avian Influenza?
2. A) Explain in detail etiology, pathogenesis, clinical findings, gross lesions and diagnosis of Mareks disease?  
(or)  
B) Write in detail about Mycoplasmal infections in poultry?
3. A) Explain in detail etiology, pathogenesis, clinical findings, gross lesions and diagnosis of Infectious Coryza?  
(or)  
B) Write in detail about Chlamydiosis?
4. A) Explain in detail etiology, pathogenesis, clinical findings, gross lesions and diagnosis of Aspergillosis?  
(or)  
B) Explain in detail etiology, pathogenesis, clinical findings, gross lesions and diagnosis of Coccidiosis?
5. A) Explain in detail Infectious Bursal Disease?  
(or)  
B) Explain in detail about Clostridial infections?

**ANDHRA UNIVERSITY**  
**B. Vocational course**  
**Dairying & Animal husbandry - Honours**  
**IV Year – Semester VIII**  
**2025-26 Admitted batch**

**VETERINARY PROTOZOOLOGY (Major Core)**  
**(Credits 3+1=4)**

**UNIT - 1**

Introduction to protozoology, historical account of protozoa, structure of protozoa, nutrition of protozoa, excretion of protozoa, reproduction of protozoa, free living and parasitic protozoa, economic importance of protozoa

**UNIT – 2**

Life cycle, pathogenesis, clinical signs, diagnosis, treatment, prevention and control of genus *Trypanosoma* (*Trypanosoma cruzi*, *Trypanosoma evansi*, *Trypanosoma equiperdum*, *Trypanosoma theleri*)

Life cycle, pathogenesis, clinical signs, diagnosis, treatment, prevention and control of genus *Leishmania* (*Leishmania tropica*, *Leishmania donovani*)

Life cycle, pathogenesis, clinical signs, diagnosis, treatment, prevention and control of genus *Giardia* (*Giardia intestinalis*)

Life cycle, pathogenesis, clinical signs, diagnosis, treatment, prevention and control of genus *Histomonas* (*Histomonas meleagridis*)

**UNIT – 3**

Life cycle, pathogenesis, clinical signs, diagnosis, treatment, prevention and control of genus *Trichomonas* (*Trichomonas foetus*, *Trichomonas gallinae*)

Life cycle, pathogenesis, clinical signs, diagnosis, treatment, prevention and control of genus *Entamoeba* (*Entamoeba histolytica*)

Life cycle, pathogenesis, clinical signs, diagnosis, treatment, prevention and control of genus *Eimeria* infecting ruminants and poultry

Life cycle, pathogenesis, clinical signs, diagnosis, treatment, prevention and control of genus *Cryptosporidium*

**UNIT – 4**

Life cycle, pathogenesis, clinical signs, diagnosis, treatment, prevention and control of genus *Sarcocystis*

Life cycle, pathogenesis, clinical signs, diagnosis, treatment, prevention and control of genus *Toxoplasma* (*Toxoplasma gondii*)

Life cycle, pathogenesis, clinical signs, diagnosis, treatment, prevention and control of genus *Plasmodium* (*Plasmodium gallinaceum*)

**UNIT - 5**

Life cycle, pathogenesis, clinical signs, diagnosis, treatment, prevention and control of genus *Babesia* infecting domestic ruminants and pet animals

Life cycle, pathogenesis, clinical signs, diagnosis, treatment, prevention and control of genus *Theileria* infecting domestic ruminants and pet animals



**References:**

- Helminths, Arthropods and Protozoa of Domesticated Animals - E.J.L. Soulsby.
- Veterinary Parasitology - G.M. Urquhart et. al.
- A Text Book of Veterinary Parasitology - B.B. Bhatia, K.M.L. Pathak. & D.P.Banerjee

**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**IV Year – Semester VIII**  
**2025-26 Admitted batch**  
**VETERINARY PROTOZOOLOGY (Major Core)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3hrs**

**Maximum: 70marks**

**SECTION – A**

Answer any **FOUR** questions. **Each question carries Five marks.** (4\*5 =20)

1. Write a short note on locomotion of protozoa.
2. Explain about nutrition in protozoa.
3. What are the harmful effects caused by protozoa?
4. Write a short note on Giardia.
5. Explain the pathogenesis and clinical signs of *Histomonas meleagridis*
6. Explain in detail about *Trichomonas gallinae*
7. Explain in detail the pathogenesis caused by *Trichomonas foetus* in cow and bulls.

**SECTION – B**

Answer **All** the questions. Each question carries **TEN** marks (5\*10 =50)

1. A) Explain in detail about reproduction of protozoa.  
(or)  
B) Explain in detail the life cycle, pathogenesis, clinical signs, diagnosis, treatment and control of *Trypanosoma evansi*
2. A) Explain in detail the life cycle, pathogenesis, clinical signs, diagnosis, treatment and control of *Leshmania tropica*  
(or)  
B) Explain in detail the life cycle, pathogenesis, clinical signs, diagnosis, treatment and control of Eimeria infecting poultry.
3. A) Explain in detail the life cycle, pathogenesis, clinical signs, diagnosis, treatment and control of *Toxoplasma gondii*.  
(or)  
B) Explain in detail the life cycle, pathogenesis, clinical signs, diagnosis, treatment and control of *Plasmodium gallinaceum*.
4. A) Explain in detail the life cycle, pathogenesis, clinical signs, diagnosis, treatment and control of Babesia.  
(or)  
B) Explain in detail the life cycle, pathogenesis, clinical signs, diagnosis, treatment and control of Theileria.
5. A) Explain in detail the economic importance of protozoa.  
(or)  
B) Explain in detail the life cycle, pathogenesis, clinical signs, diagnosis, treatment and control of *Entamoeba histolytica*.

**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**IV Year – Semester VIII**  
**2025-26 Admitted batch**

**ANIMAL BIRTH CONTROL PROGRAMME (Major - Elective)**  
**(Credits 3+1=4)**

**UNIT – 1**

Survey of the stray dog population in the area. General consideration. Points to be noted while conducting the field survey. Counting of dogs. Need for a female centred approach. Humane capture and handling of stray dogs. General principles. Catching techniques. Identification of stray dogs. Dos and Don'ts with regards to catching of dogs.

**UNIT – 2**

Transportation of stray dogs. Vehicular design considerations. Basic specifications for dog catching vans. Dos and Don'ts in transportation. Choice of vehicles. Infrastructure for ABC programmes. Housing. Kennel management. Energy resources. Ventilation. Number of kennels. Operating facilities. Anti-Rabies vaccination.

**UNIT – 3**

Key elements for a successful ABC programme. Identification of stray dogs while being caught. Permanent identification. Record keeping. Monitoring programme effectiveness. Pre-operative considerations. Preliminary checks. Pre-surgical checks. Pre-operative preparations.

**UNIT- 4**

Surgery for ABC programmes. Anaesthetic and surgical protocols. Ear notching. Sterilisation-General considerations. Surgical procedure for female dogs. Male surgical sterilization.

**UNIT - 5**

Post-operative care, Anti-rabies vaccinations and release of dogs. Post-surgical care-General considerations. Use of analgesics. Use of antibiotics. Anti-rabies vaccines; General considerations. Guidelines for release of sterilized and vaccinated dogs. Education of public. Euthanasia, post-mortem examination and verification of ABC surgeries.

**PRACTICALS:**

- Visit to animal rescue centre.
- Visit to animal birth control programme unit.
- Guest lecture with police officer involved in confiscation of vehicles carrying out illegal transportation of animals.
- Interaction with animal welfare activists.
- Visit to Blue cross unit.
- Visit to nearest SPCA (Society for prevention of cruelty to animals).

**REFERENCE BOOKS:**

- Manual on “Standard operating procedures” of Animal birth control programme – Animal welfare board of India.
- Can a stray dog become man’s best friend? 5 steps to harmonious living with stray dogs – Kuhu Roy.
- Study material of Post graduate diploma on animal welfare (PGDAW) – IGNOU
- Animal welfare ethics and Jurisprudence – Kirti Dua
- A practical approach to animal welfare laws – Noel Sweeney
- Veterinary Jurisprudence and post mortem – Ranum Dabas

**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**IV Year – Semester VIII**  
**2025-26 Admitted batch**  
**ANIMAL BIRTH CONTROL PROGRAMME (Major - Elective)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3hrs**

**Maximum: 70marks**

**SECTION – A**

Answer any **FOUR** questions. **Each question carries Five marks.** (4\*5 =20)

1. What are the points to be considered while doing a field survey?
2. Write in detail about the Do's and Don'ts with regard to catching of dogs.
3. Explain in detail about first aid in case of a dog bite.
4. Write a short note general considerations for anti-rabies vaccination.
5. Write in detail about confirmation of death in case of stray dogs.
6. Explain about preoperative preparation of patient for surgery.
7. Explain preparation of patient prior to surgery.

**SECTION – B**

Answer **All** the questions. Each question carries **TEN** marks (5\*10 =50)

1. A) Explain in detail about the methods for conducting a dog population count.  
(or)  
B) Explain in detail about the techniques for catching street dogs.
2. A) Explain in detail about transportation of stray dogs.  
(or)  
B) What are the methods used for identification of stray dogs.
3. A) Explain in detail about preparation of patient for surgery.  
(or)  
B) Explain in detail about clinical complications seen following an ovario-hysterectomy surgery.
4. A) Describe in detail about general considerations of post-surgical care of dogs.  
(or)  
B) Explain the guidelines for release of the sterilized and vaccinated dogs.
5. A) Explain in detail about castration in male dogs.  
(or)  
B) Write in detail about midline spaying technique in female dogs.

**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**IV Year – Semester VIII**  
**2025-26 Admitted batch**

**HATCHERY MANAGEMENT AND BIO SECURITY MEASURES (Major - Elective)**  
**(Credits 3+1=4)**

**UNIT – 1**

Importance of hatchery management, different types of poultry houses, layout of poultry farm, classification of poultry housing systems (Free range or extensive system, Semi-intensive system, intensive system), brooding management, Receiving of chicks, grower management, layer management, layer production indices, biosecurity measures. Principles of incubation and hatchery management practices. Factors affecting fertility and hatchability, selection and care of hatching eggs and hatchery hygiene.

**UNIT – 2**

Candling, sexing, grading, packing and disposal of hatchery waste. Economics of hatchery business – Troubleshooting hatchery failures–Computer applications in hatchery management.

**UNIT – 3**

Poultry waste management, pollution and environmental issues. Organic and hill farming. Mixed or integrated poultry farming

**UNIT – 4**

Vertical & horizontal integration in commercial poultry production – Contract farming. Export or import of poultry produce and marketing.

**UNIT – 5**

Bio-security- conceptual biosecurity, structural biosecurity and operational biosecurity, principles of disease management. Health care for common poultry diseases – vaccination. General principles of poultry medication.

**PRACTICAL:**

- 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.

**REFERENCES:**

- Manual of Avian Production and Management - Nilotpal Ghosh and Rajarshi Samanta
- Modern Poultry Farming - Murd, L.M.
- Commercial Broiler Production - Johari, D.C.and Hussain, K.Q.

**ANDHRA UNIVERSITY**  
**B. Vocationalcourse**  
**Dairying & Animal husbandry - Honours**  
**IV Year – Semester VIII**  
**2025-26 Admitted batch**  
**HATCHERY MANAGEMENT AND BIO SECURITY MEASURES (Major - Elective)**  
**(Credits 3+1=4)**

**Model paper**

**Time: 3hrs**

**Maximum: 70marks**

**SECTION – A**

Answer any **FOUR** questions. **Each question carries Five marks.** (4\*5 =20)

1. Write a short note on free range and deep litter housing system.
2. Explain about restricted feeding.
3. Explain in detail about principles of disease management.
4. Write a short note on candling
5. Write in detail about computer applications of hatchery management
6. Explain about sexing and grading of eggs
7. Explain about the export and import of poultry products

**SECTION – B**

Answer **All** the questions. Each question carries **TEN** marks (5\*10 =50)

1. A) Write the classification of housing systems. Explain in detail any 3 types of housing systems.  
(or)  
B) Explain in detail about layout of poultry farm.
2. A) Explain in detail about brooding of chicks.  
(or)  
B) Explain in detail about the bio-security measures that are to be taken in a poultry farm.
3. A) Explain in detail about disposal of dead bird.  
(or)  
B) Explain in detail about methods of incubation.
4. A) Describe in detail about factors affecting fertility and hatchability.  
(or)  
B) Explain any five common poultry diseases.
5. A) Explain in detail about poultry waste management  
(or)  
B) Write in detail about vaccination in layer birds.