

**ANDHRA UNIVERSITY
VISAKHAPATNAM**

**B. Vocational
Agriculture (Honours)**

**UGC- NATIONAL SKILLS
QUALIFICATIONS
FRAMEWORK**

**SYLLABUS
For
1st to 8th Semesters**

2023-24 Admitted batch

B.VOC (HONOURS) AGRICULTURE 2023-24 BATCH					
1 st Year	1 st Semester	1.	English	Language	3+0=3
		2.	Telugu	Language	3+0=3
		3.	Introduction to Social Work	Multi-disciplinary course	2+0=2
		4.	Leadership skills	Skill enhancement course	2+0=2
		5.	Communication skills	Skill enhancement course	2+0=2
		6.	Basics in crop production and crop protection	Major subject	4+0=4
		7.	Basics of Agriculture sciences	Major subject	4+0=4
	Total				20+0=20
	2 nd Semester	1.	English	Language	3+0=3
		2.	Telugu	Language	3+0=3
		3.	Fruits and Vegetable preservation	Skill enhancement course	2+0=2
		4.	Agriculture marketing	Skill enhancement course	2+0=2
		5.	Principles of Agronomy	Major subject	4+0=4
		6.	Introduction to soil science	Major subject	4+0=4
7.		Fundamentals of genetics	Minor subject	3+1=4	
Total				21+1=22	
Community service project of 180 hours with 4 credits. Student is eligible for Exit option-1 with the award of Certificate					0+4=4
2 nd Year	3 rd Semester	1.	Introduction to public administration	Multi-disciplinary course	2+0=2
		2.	Plant nursery	Skill enhancement course	2+0=2
		3.	Agronomy of field crops	Major subject	3+1=4
		4.	Manures, fertilizers and soil fertility management	Major subject	3+1=4
		5.	Introduction to Entomology	Major subject	3+1=4
		6.	Introduction to Plant Pathology	Major subject	3+1=4
		7.	Horticulture	Minor subject	3+1=4
	Total				19+5=24
	4 th Semester	1.	Health and hygiene	Multi-disciplinary course	2+0=2
		2.	Disaster management	Skill enhancement course	2+0=2
		3.	Pests of field crops and their management	Major subject	3+1=4
		4.	Diseases of field crops and their management	Major subject	3+1=4
		5.	Principles of plant breeding	Major subject	3+1=4
		6.	Principles of organic farming	Minor subject	3+1=4
		7.	Production technology of fruits and vegetables	Minor subject	3+1=4
	Total				19+5=24
	Short term internship/Apprenticeship of 180 hrs with 4 credits. Student is eligible for Exit option-2 with the award of Diploma.				
	5 th Semester	1.	Rain fed Agriculture and watershed management	Major subject	3+1=4
		2.	Weed and water management	Major subject	3+1=4
		3.	Fundamentals of crop Physiology	Major subject	3+1=4
		4.	Pests of horticultural crops and productive Entomology	Major subject	3+1=4
		5.	Principles of seed technology	Minor subject	3+1=4
		6.	Introduction to production economics and farm management	Minor subject	3+1=4
		7.	Environmental education		2+0=2
	Total				20+6=26
	6 th Semester Long term semester internship/Apprenticeship with 12 credits. Student is eligible forExit option-3 with the award of Degree.				
4 th Year	7 th Semester	1.	Agriculture microbiology	Major subject	3+1=4
		2.	Insect ecology and integrated pest management	Major subject	3+1=4
		3.	Farm power and machinery	Major subject	3+1=4
		4.	Post-harvest management and value addition of fruits and Vegetables	Skill enhancement course	3+1=4
		5.	Farming systems and sustainable agriculture	Skill enhancement course	3+1=4
		6.		Open online transdisciplinary course	2+0=2
		7.		Indian knowledge system-Audit course	-
	Total				17+5=22
	8 th Semester	1.	Principles of plant biotechnology	Major subject	3+1=4
		2.	Breeding of field crops	Major subject	3+1=4
		3.	Fundamentals of rural sociology and extension education	Major subject	3+1=4
		4.	Floriculture	Skill enhancement course	3+1=4
		5.	Entrepreneurship development	Skill enhancement course	3+1=4
		6.		Open online transdisciplinary course	2+0=2
		7.		Indian knowledge system-Audit course	-
	Total				17+5=22
	Grand total				
20 Additional credits for 10-month mandatory Internship/Apprenticeship					

CURRICULUM FRAME WORK

B.Voc Agriculture(Honours) **2023-24 ADMITTED BATCH**

Subjects	Semester I	Semester II	Semester III	Semester IV	Semester V	Semester VI (Field work)	Semester VII	Semester VIII	Total credits
English	3+0=3	3+0=3							6+0=6
Telugu	3+0=3	3+0=3							6+0=6
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			6+2=8	6+2=8	24+4=28
Major subjects	8+0=8	8+0=8	12+4=16	9+3=12	12+4=16		9+3=12	9+3=12	67+17=84
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
Environmental education					2+0=2				2+0=2
CSP		0+4=4							0+4=4
Short-term internship				0+4=4					0+4=4
Long-term internship						0+12=12			0+12=12
Total	20+0=20	21+5=26	19+5=24	19+9=28	20+6=26	0+12=12	17+5=22	17+5=22	133+47=180

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
I Year Semester- I

1.	English	Language	3+0=3
2.	Telugu	Language	3+0=3
3.	Introduction to social work	Multi-disciplinary course	2+0=2
4.	Leadership skills	Skill enhancement course	2+0=2
5.	Communication skills	Skill enhancement course	2+0=2
6.	Basics in crop production and crop protection	Major subject	4+0=4
7.	Basics of Agriculture sciences	Major subject	4+0=4
TOTAL			20+0=20

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
I Year Semester- I
ENGLISH
(CREDITS 3+0=3)

I. UNIT: Listening Skills

- a. Importance of Listening
- b. Types of Listening
- c. Barriers to Listening
- d. Effective Listening

II. UNIT: Phonetics

- a. Sounds of English: Vowels and Consonants
- b. Syllable
- c. Word Stress
- d. Intonation

III. UNIT: Grammar

- a. Concord
- b. Articles
- c. Prepositions
- d. Tenses
- e. Question tags

IV. UNIT: Speaking Skills

- a. Greetings & Introduction
- b. Asking and Giving Information
- c. Yes, We Can Barack Obama
- d. Agreeing/ Disagreeing
- e. A Leader Should Know How to Manage Failure Dr. A.P.J. Abdul Kalam

V. UNIT: Soft Skills

- a. SWOC
- b. Attitude
- c. Emotional Intelligence
- d. Netiquette
- e. Interpersonal Skills

References:

1. Soft Skills, Dr. Alex (New Delhi: S. Chand & Company Ltd) 2009.
2. Interpersonal Skills Training, Philip Burnard (New Delhi: Viva Books Private Ltd)
3. Soft Skills for Everyone, Jeff Butterfield (New Delhi: Cengage Learning India Pvt Ltd) 2012
4. Emotional Intelligence, Daniel Goleman (London: Bloomsbury Publishing) 1996
5. A Text Book of English Phonetics for Indian Students, Balasubramanian
6. A Handbook for English Language Labor, E. Suresh Kumar, P. Sreehari
7. Communication Skills (2nd Edition), Sanjay Kumar & PushpLata, Oxford University Press, 2016.

Activities:

Make the students listen to news excerpts.

Watch interviews and speeches on You Tube.

Role plays on formal and informal conversations.

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
I Year Semester- I
TELUGU
(CREDITS 3+0=3)

పాఠ్య ప్రణాళిక

యూనిట్ -I (ప్రాచీన కవిత్వం)

రాజనీతి - నన్నయ్య - ఆంధ్ర మహాభారతం - సభాపర్వం - ప్రథమాశ్వాసం (26-57 పద్యాలు)

- | | |
|----------------------------------|-----------------------------|
| ▪ నన్నయ్య - కవి పరిచయం | ▪ ప్రజాపాలన - నాడు, నేడు |
| ▪ రాజనీతి - పార్శ్యాంశ ఇతివృత్తం | ▪ రాజనీతి పార్శ్యాంశ సందేశం |

యూనిట్ -II (ఆధునిక కవిత్వం)

గబ్బిలం - జాషువా - ప్రథమ భాగం (1-40 పద్యాల వరకు)

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|--|----------------------|
| ▪ గుర్రం జాషువా - కవి పరిచయం, కవితా శైలి | ▪ కావ్య రచనా నేపథ్యం |
| ▪ గబ్బిలం పార్శ్యాంశ ఇతివృత్తం | ▪ పార్శ్యాంశ సందేశం |

యూనిట్ -III (కథానిక)

అలరాస పుట్టిళ్ళు - కళ్యాణ సుందరీ జగన్నాథ్

- | | |
|-------------------|-----------------------|
| ▪ రచయిత్రి పరిచయం | ▪ కథా నేపథ్యం, సందేశం |
| ▪ కథాంశం | ▪ పాత్ర చిత్రణ |

యూనిట్ -IV (నవల)

అసమర్థుని జీవయాత్ర - గోపీచంద్

- | | |
|-------------------------------|---------------|
| ▪ గోపీచంద్ - రచయిత పరిచయం | ▪ నవల నేపథ్యం |
| ▪ నవల ఇతివృత్తం, పాత్ర చిత్రణ | ▪ నవలా సందేశం |

యూనిట్ -V (జీవిత చరిత్ర)

మూడు వాఙ్మయ శిఖరాలు - తిరుమల రామచంద్ర

- | | |
|-------------------------------|-------------------------|
| ▪ తిరుమల రామచంద్ర - కవిపరిచయం | ▪ నిడదవోలు వేంకట రావు |
| ▪ వేటూరి ప్రభాకర శాస్త్రి | ▪ మానవల్లి రామకృష్ణ కవి |

వ్యాకరణం

సంధులు: అత్వ, ఇత్వ, ఉత్వ, త్రిక,
సరళాదేశ, గసడదవాదేశ, ద్విరుక్త టకార,
సవర్ణ దీర్ఘ, గుణ, యణాదేశ,
వృద్ధి సంధులు.

సమాసాలు: అవ్యయిభావ, తత్పురుష,
కర్మధారయ, ద్వంద్వ, ద్విగు, బహువ్రీహి.

అర్థాలంకారాలు : ఉపమ, ఉత్పేక్ష, రూపక,
స్వభావోక్తి, అర్థాంతర వ్యాస, అతిశయోక్తి, శ్లేష,
శబ్దాలంకారాలు: వృత్తనుప్రాస, భేకానుప్రాస,
లాటానుప్రాస, అంత్యానుప్రాస

వృత్తాలు: ఉత్పలమాల, చంపకమాల,
శార్దూలము, మత్తేభము

జాతులు : కందం, ద్విపద

ఉపజాతులు : ఆటవెలది, తేటగీతి, సీసం
ముత్యాలసరాలు

■ ఆధార గ్రంథాలు:

1. శ్రీమదాంధ్ర మహాభారతము - సభాపర్వము-
తిరుమల తిరుపతి దేవస్థానం ప్రచురణ
2. గబ్బిలం - జాషువా
3. అలరాస పుట్టిళ్లు - కళ్యాణ సుందరీ జగన్నాథ్
4. అసమర్థుని జీవయాత్ర - త్రిపురనేని గోపీచంద్
5. మూడు వాఙ్మయ శిఖరాలు - తిరుమల
రామచంద్ర

■ సూచించబడిన సహపాఠ్య కార్యక్రమాలు:

1. నన్నయ్య, తిక్కన, ఎఱ్ఱన మొదలైన ప్రసిద్ధ
కవుల పాఠ్యాంశేతర పద్యాలను ఇచ్చి,
విద్యార్థులచేత సమీక్షలు రాయించడం; ఆయా
పద్యాల్లోని యతిప్రాసాది భందోవిశేషాలను
గుర్తింపజేయడం.

2. విద్యార్థులచేత పాఠ్యాంశాలకు సంబంధించిన
వ్యాసాలు రాయించడం (సెమినార్/అసైన్మెంట్)
3. ప్రాచీన పాఠ్యాంశాలలోని సమకాలీనతను
గూర్చిన బృంద చర్చ, ప్రాచీన సాహిత్యాన్ని నేటి
సామాజిక దృష్టితో పునర్మూల్యాంకనం
చేయించడం.
4. చారిత్రక, సాంస్కృతిక అంశాలకు సంబంధించిన
పర్యాటక ప్రదేశాలను సందర్శించడం.
5. వ్యక్తిగత/బృంద ప్రాజెక్టులు చేయించడం.

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
I Year Semester- I
INTRODUCTION TO SOCIAL WORK
(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.

Suggested Co-curricular Activities:

1. Divide the students into groups, each group containing not exceeding 10 students depending upon the total number of students in a class or section. Each group can search in internet about any one of the institutions which work for the welfare of children or women or elderly or scheduled caste and scheduled tribe children or differently abled persons or Juvenile homes or Correctional homes or hospitals or Mahila Pragathi Pranganam or Swadhar project or any social welfare project or non governmental organizations (NGOs) to have an idea about welfare agencies working for the needy.
2. Ask each group to exchange and discuss the information with other groups in the classroom with the information they collected on Internet.
3. Group Discussion with the students- what type of community problems they observe in their villages/towns/cities? Ask them to tell what are the line departments which will help to solve the problems of their communities and suggest them what type strategies help the communities to empower.
4. Invited lectures/Training by local experts
5. Visit to a community
6. Assignments, Quiz etc.

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,
5. 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 &Carolyn Hatcher, (2002). Presentation skills. The Essential Guide for Students. New Delhi, Sage Publications.
9. Websites on Social work methods.

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
I Year Semester- I
LEADERSHIP SKILLS
(CREDITS 2+0=2)

Unit – I:

Meaning of Personality – Explanations of Human Personality – Psychodynamic Explanations – Social Cognitive Explanation – Big Five traits of Personality

Unit – II:

Assessment of Personality - Projective & Self Report Techniques - Building Self Confidence – Enhancing Personality Skills

Unit – III:

Leadership Characteristics – Types of Leaders – Importance of Leadership – Leadership Skills – Building and Leading Efficient Teams – Leadership Qualities of Abraham Lincoln, Mahatma Gandhi, Prakasam Pantulu, Dr. B. R. Ambedkar & J.R.D. Tata

Co-curricular Activities Suggested:

1. Assignments, Group discussions, Quiz etc.,
2. Invited Lecture by a local expert
3. Case Studies (ex., on students behavior, local leaders etc.)

Reference Books:

- Girish Batra, Experiments in Leadership, Chennai: Notion Press, 2018
- Mitesh Khatri, Awaken the Leader in You, Mumbai: Jaico Publishing House, 2013
- Carnegie Dale, Become an Effective Leader, New Delhi: Amaryllis, 2012
- Hall, C.S., Lindzey. G. & Campbell, J.B Theories of Personality. John Wiley & Sons, 1999

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
I Year Semester- I
COMMUNICATION SKILLS
(CREDITS 2+0=2)

UNIT-I BASICS OF COMMUNICATION

1. Nature and importance of communication
2. Process of Communication
3. Principles of communication
4. Barriers to effective communication
5. Strategies for effective communication

UNIT-II PRESENTATION SKILLS

1. Preparation of a good presentation
2. Verbal communication in presentation
3. Non-verbal communication in presentation
4. Visual aids/Materials in presentation
5. Analyzing audience and managing questions

UNIT- III INTERVIEWS AND GROUP DISCUSSIONS

1. Interview and its types
2. Before, during and after an interview
3. Do's and Don'ts in an interview
4. Basic Interview questions
5. Structure and process of Group Discussions
6. Role functions, Do's and Don'ts

Recommended Activities:

- Presenting seminar papers.
- Mock interviews.
- Using Power point presentations in seminars.

References:

- Working in English, Jones, Cambridge
- Business Communication, Raman –Prakash, Oxford
- Speaking Personally, Porter-Ladousse, Cambridge
- Speaking Effectively, Jermy Comfort, et.al, Cambridge
- Anjanee Sethi & Bhavana Adhikari, Business Communication, Tata McGraw Hill
- Jermy Comfort, Speaking Effectively, et.al, Cambridge

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
I Year Semester- I
BASICS IN CROP PRODUCTION AND CROP PROTECTION
(CREDITS 4+0=4)

UNIT –I: INTRODUCTION TO AGRONOMY

- Importance and scope of Agriculture, Definition- Branches of AGRICULTURE (Honours)- History of Agricultural development in the World and India.
- Agroclimatic zones- Agronomy - Definition - Importance - Meaning and scope - Agro- climatic zones of Andhra Pradesh & India.

UNIT-II: INTRODUCTION TO SOIL SCIENCE

- Definition of soil, Soil as a Natural Body.
- Soil separates, texture, Aggregation and Structural Characters, Temperature and Color,

UNIT-III: INTRODUCTION TO GENETICS

- De-oxyribo Nucleic Acid (DNA) and its structure – Watson and Crick model functions and types of DNA
- Modes of DNA replication – semi-conservative DNA replication – experimental proof; Ribo Nucleic Acid (RNA) – structure, function and types – messenger RNA (mRNA), ribosomal RNA (rRNA) and transfer RNA (tRNA) – differences between DNA and RNA
- Genetic code – properties of genetic code – central dogma – outline of protein synthesis – transcription and translation

UNIT –IV: INTRODUCTION TO ENTOMOLOGY

- Position of insects in the animal kingdom. Reasons for insect dominance.
- General organisation of insect body wall - structure and function, cuticular appendages, moulting; Body regions - insect head, thorax and abdomen, their structure and appendages.

UNIT – V: INTRODUCTION TO PLANT PATHOLOGY

- Introduction to plant diseases and their causal organisms
- History, Importance of plant diseases, scope and objectives of Plant Pathology.
- Important plant pathogenic organisms, Classification of Plant Diseases Binomial system of nomenclature, rules of nomenclature

REFERENCES

1. Reddy, S R and Reddi Ramu 5th edition 2016, -kalyani publishers, Ludhiana.
2. Indian Society of Soil Science.2012. Fundamentals of Soil Science. IARI, New Delhi.
3. Gupta, P.K. 1985. Cytology, Genetics and Cytogenetics. Rastogi Publications, Meerut. Gupta, P.K. 2007. Genetics. Rastogi Publications, Meerut
4. 6. Introduction to Principles of Plant Pathology – Singh R. S. 1984. Oxford & IBH Publishing Co., New Delh

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
(Honours)
2023-24 Admitted Batch
I Year Semester – I
BASICS IN CROP PRODUCTION AND PROTECTION
MODEL QUESTION PAPER

Time: 3 Hours

Maximum: 75 Marks

SECTION – A

Answer any **FIVE** questions. Each question carries equal marks. (5*5 = 25)

1. Define Agronomy? Discuss about its scope & importance briefly.
2. Write a note on Agro Climatic Zones of Andhra Pradesh.
3. Define Soil? Why it is called OS natural body?
4. What do you mean by soil texture and soil structure?
5. Write the Properties of Genetic code.
6. Write about types of DNA & RNA.
7. What is moulting and write about stages and hormones involved in process of moulting.
8. Write about nomenclature and rules of nomenclature

SECTION – B

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

1. a) Write about the History of agricultural development in the world.

(OR)

- b) Write about the classification of soil texture and soil structure.

2. a) Define Agronomy and give its scope and the importance.

(OR)

- b) Write about the soil temperature and soil colour

3. a) Write about the central dogma and explain protein synthesis

(OR)

- b) Explain Semi Conservative method of replication.

4. a) Explain about different body regions of an insect

(OR)

- b) Give an account on reasons for insect dominance

5. a) Write about importance, scope and objectives of plant pathology

(OR)

- b) Elaborate the classification of plant disease.

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
I Year Semester- I
BASICS OF AGRICULTURAL SCIENCES
(CREDITS 4+0=4)

UNIT –I: INTRODUCTION TO PLANT BREEDING

- Historical development, concept, nature, objectives and role of plant breeding.
- Modes of reproduction and apomixes

UNIT-II: INTRODUCTION TO CROP PHYSIOLOGY

- Introduction to Crop Physiology and its importance in agriculture
- Plant cell - The endomembrane system - Plasma membrane, endoplasmic reticulum, nuclear envelope, golgi apparatus, vacuole and endosomes - Structure and functional characteristics-Plastids, mitochondria, oil bodies, peroxisomes and glyoxysomes - Structure and functions.

UNIT-III: INTRODUCTION TO AGRICULTURAL MICROBIOLOGY

- Introduction to microbiology importance of different microbial groups importance of microorganisms:
- History of microbiology role of microbes in fermentation
- Germ theory of diseases koch's postulates: pure culture methods

UNIT –IV: INTRODUCTION TO HORTICULTURE

- Horticulture – Definition - Divisions of horticulture with suitable examples.
- Scope and importance of horticulture - Importance of horticulture in terms of income, employment generation, industry, religious, aesthetic, food & nutritive value and export.
- Horticultural classification based on soil, climate and botanical classification.
- Climate and soil for horticultural crops - Influence of environmental factors on horticultural crop production – Temperature, humidity, wind, rainfall and solar radiation – Influence of soil factors – Soil type, pH, EC.

UNIT – V: INTRODUCTION TO FARM POWER AND MACHINERY

- Farm Power in INDIA – Introduction- Different sources of farm power- Merits and demerits of farm sources- status of farm power in India.
- Farm mechanization- Scope- Concept of farm mechanization
- Classifications of energy sources- Renewable- Non- renewable- Need of renewable energy sources- Types of renewable energy sources- Solar energy- Wind energy- Biogas
- Heat engines- Introduction- Types- External combustion engine- Internal combustion engine- Classification of IC engine - Two stroke and Four stroke engine- Diesel engine- Petrol engine.

REFERENCES

1. Chadha, K.L. 2001. *Handbook of Horticulture*. ICAR, New Delhi.
2. Jitendra Singh, 2012. *Basic Horticulture*. Kalyani Publishers. New Delhi.
3. Plant Breeding: Principles & Practices by JR Sharma,
4. JagdishwarSahay (1977), Elements of Agricultural Engineering, Standard Publications, New Delhi

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
I Year Semester – I
BASICS OF AGRICULTURAL SCIENCES
MODEL QUESTION PAPER

Time: 3 Hours

Maximum: 75 Marks

SECTION – A

Answer any **FIVE** questions. Each question carries equal marks. (5*5 = 25)

1. Objectives of the plant breeding
2. Future prospects of the plant breeding
3. Write about the structure and functions of Endoplasmic Reticulum
4. Explain about different microbial groups.
5. Scope of horticulture in India.
6. What are the different sources of farm power and give the merits and demerits of farm sources
7. Give the Importance of horticulture in terms of export.
8. Write about the structure and functions of golgi apparatus

SECTION – B

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

1. a) Write about the structure and functions of mitochondria and Ribosomes
(OR)
b) Germ theory of diseases koch's postulates: pure culture methods
2. a) Give an account of the classification of horticulture.
(OR)
c) Describe the influence of climatic factors on horticultural crop production.
3. a) Write about sexual reproduction in plants.
(OR)
b) Write about objectives and scope of plant breeding.
4. a) Write about the classification of IC engine with their characteristics.
(OR)
b) Write an essay on various types of renewable energy resources.
5. a) Write about the importance of microorganisms and role of microbes in fermentation.
(OR)
b) Explain the divisions of horticulture.

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
I Year Semester – II

1.	English	Language	3+0=3
2.	Telugu	Language	3+0=3
3.	Fruits and Vegetable preservation	Skill development course	2+0=2
4.	Agriculture marketing	Skill development course	2+0=2
5.	Principles of Agronomy	Major subject	4+0=4
6.	Introduction to soil science	Major subject	4+0=4
7.	Fundamentals of genetics	Minor subject	3+1=4
Total			21+1=22
<p style="text-align: center;">Community service project of 180 hours with 4 credits. Student is eligible for Exit option-1 with the award of Certificate</p>			

ANDHRA UNIVERSITY
B.Vocational course
AGRICULTURE(HONS)
I Year – Semester II
2023-24 Admitted batch
English
(Credits 3+0=3)

I. UNIT

- Poetry : 1.Ulysses Alfred Lord Tennyson
- Skills 2. Vocabulary: Conversion of Words
3. One Word Substitutes
- 4.Collocations

II. UNIT

- Prose : 1. The Best Investment I Ever Made A.J.Cronin
- Non-Detailed Text: 2. Florence Nightingale Abrar Mohsin
- Skills 3. Skimming and Scanning

III. UNIT

- Prose: 1. TheNight Train at Deoli Ruskin Bond
- PoetrySkills: 2. Stopping by Woods on a Snowy Evening
- 3.Reading Comprehension (Top Down, Bottom Up and Schema Theory)
4. Note Making/ Taking Robert Frost

IV.UNIT

- Poetry: 1. Night of the Scorpion Nissim Ezekiel
- Skills 2. Expansion of Ideas
- 3.Notices, Agendas and Minutes

V.UNIT

- Non-Detailed Text Skills : 1.An Astrologer's Day RK Narayan
2. Curriculum Vitae and Resume
3. Letters
- 4.E-Correspondence

References:

1. Communication Skills (2nd Edition), Sanjay Kumar & PushpLata, Oxford University Press, 2016.
2. The New Oxford Guide to Writing, Thomas. S. Kane,
3. Reading Skills: How to Read Better and Faster- Speed Reading, Reading Comprehension & Accelerated Learning (2nd Edition), Nick Bell.
4. English Vocabulary in Use: Upper Intermediate, Cambridge University Press.

Activities:

Asking the students to prepare a model resume.

Quiz on one word substitutes.

Collocation pair activity.

Asking the students to read news clippings and make notes.

ANDHRA UNIVERSITY

B.Vocational course
AGRICULTURE(HONS)

I Year – Semester II
2023-24 Admitted batch

TELUGU

(Credits 3+0=3)

పాఠ్య ప్రణాళిక

I. వ్యక్తీకరణ నైపుణ్యాలు

- భాష- నిర్వచనాలు, లక్షణాలు
- భాష- ఆవశ్యకత, ప్రయోజనాలు
- భాష – ఉత్పత్తి వాదాలు
- పద్యం - పదం – వాక్యం

II. అనువాద రచన

- అనువాదం - నిర్వచనాలు, ఆవశ్యకత
- అనువాద పద్ధతులు
- అనువాద సమస్యలు - భౌగోళ, భాష, సాంస్కృతిక సమస్యలు.
- అభ్యాసం ఆంగ్లంనుంచి తెలుగుకు, తెలుగు నుంచి ఆంగ్లానికి ఒక 'పేరా' అనువాదం చేయడం

III. మాధ్యమాలకు రచన

- పత్రికా రచన – వార్తారచన, సంపాదకీయం, సమీక్ష
- శ్రవ్య మాధ్యమం – రేడియో రచన (కథ), podcast (డాక్యుమెంటరీ)
- దృశ్య మాధ్యమం – టెలివిజన్ (కెమెరా) రచన [రూపకం (Skit), వాఖ్యానం (Anchoring)]
- ముద్రణా మాధ్యమ / శ్రవ్య మాధ్యమ / దృశ్య మాధ్యమ రచన విద్యార్థుల చేత చేయించడం

IV. తెలుగు వ్యాస రచన

- తెలుగు వ్యాసం - నిర్వచనాలు, లక్షణాలు
- సాక్షి వ్యాసం – స్వభాష
- ఉపాధ్యాయ ఉవాచ – మునిమాణిక్యం నరసింహారావు
- విద్యార్థి చేత వ్యాస రచన చేయించడం

V. తెలుగు సాంకేతికత

- తెలుగు లిపి పరిచయం - యూనికోడ్
- తెలుగు వికీపీడియా
- సామాజిక మాధ్యమాల్లో తెలుగు
- ('ఇ' పత్రికలు, వెబ్సైట్లు, బ్లాగు)
- తెలుగు వికీపీడియాలో మార్పులు చేర్పులు విద్యార్థుల చేత చేయించడం/
- సామాజిక మాధ్యమాల్లో తెలుగు రచనలు చేయించడం

▪ ఆధార గ్రంథాలు/వ్యాసాలు

1. వ్యక్తీకరణ నైపుణ్యాలు - 1. ఆధునిక భాషాశాస్త్ర సిద్ధాంతాలు - ఆచార్య పి. ఎన్. సుబ్రహ్మణ్యం
 2. తెలుగు భాషా చరిత్ర – (సం.) ఆచార్య భద్రరాజు కృష్ణమూర్తి
 3. తెలుగు వాక్యం – ఆచార్య దేకురి రామారావు,
 2. ఉత్తమ కవిత-లక్షణాలు - నవ్యకవిత్య లక్షణములు - ఆచార్య సి. నారాయణరెడ్డి
- ఆధునికాంధ్ర కవిత్యము-సంప్రదాయములు, ప్రయోగములు, చతుర్థ ప్రకరణము.

3. ఉత్తమ కథ -లక్షణాలు - కథాశిల్పం-వల్లంపాటి వెంకటసుబ్బయ్య, పుటలు 11-17.
4. తెలుగు కథానిక - స్వరూప స్వభావాలు - పోరంకి దక్షిణామూర్తి
5. ఉత్తమ వ్యాసం లక్షణాలు - చదువు - సంస్కృతి (వ్యాసం) - కొడవటిగంటి కుటుంబరావు
6. తెలుగు వ్యాస పరిణామం - ఆచార్య కొలకలూరి ఇనాక్
7. అనువాద రచన - 1. అనువాద సమస్యలు - రాచమల్లు రామచంద్రారెడ్డి (పుటలు 61-75, 85-94)
2. అనువాదన పద్ధతులు - ఆచరణ సమస్యలు-చేకూరి రామారావు.
"భాషాంతరంగం", తెలుగు విశ్వవిద్యాలయం ప్రచురణ. (పుటలు 130-146,)
8. ముద్రణా మాధ్యమం - మాధ్యమాలకు రచన (పుటలు 9-12)
డా॥ బి.ఆర్. అంబేద్కర్ విశ్వవిద్యాలయ ప్రచురణ
9. పత్రికా భాష - మాధ్యమాలకు రచన (పుటలు 67-74)

10. పత్రికా రచన - డా॥ బి.ఆర్. అంబేద్కర్ విశ్వవిద్యాలయ ప్రచురణ
- తెలుగు మౌలికాంశాలు (పుటలు 59-69)
డా॥ బి.ఆర్. అంబేద్కర్ విశ్వవిద్యాలయ ప్రచురణ
11. ప్రసార మాధ్యమాలు- మాధ్యమాలకు రచన (పుటలు 3-10)
డా॥ బి.ఆర్. అంబేద్కర్ విశ్వవిద్యాలయ ప్రచురణ
12. రేడియో రచన - మాధ్యమాలకు రచన (పుటలు 141-148)
డా॥ బి.ఆర్. అంబేద్కర్ విశ్వవిద్యాలయ ప్రచురణ
- చూ. మాధ్యమాలకు రచన (పుటలు 141-148)
13. వ్యాఖ్యానం (యాంకరింగ్) - మాధ్యమాలకు రచన (పుటలు 178-181)
డా॥ బి.ఆర్. అంబేద్కర్ విశ్వవిద్యాలయ ప్రచురణ
14. టెలివిజన్ రచన - మాధ్యమాలకు రచన (పుటలు 153 -160)
డా॥ బి.ఆర్. అంబేద్కర్ విశ్వవిద్యాలయ ప్రచురణ
15. తెలుగు జర్నలిజం - డా॥ బూదరాజు రాధాకృష్ణ

సూచించబడిన సహపాఠ్య కార్యక్రమాలు

1. భాషాంశాలపై, వాక్య నిర్మాణంపై అసైన్మెంట్లు రాయించడం; పత్రికల్లోని సాహిత్య/భాషాంశాలను సేకరింపజేయడం.
2. విద్యార్థులచేత తెలుగు భాషా సాహిత్యాలపై ప్రసంగ వ్యాసం ఇప్పించడం (సెమినార్, అసైన్మెంట్)
3. వ్యాసరచన, లేఖారచన, స్వీయ కవితలు రాయించి తరగతిలో చదివింపజేయడం
4. వివిధ కార్యక్రమాల్లో విద్యార్థులచేత సదస్సు నిర్వహణ, వ్యాఖ్యానం (యాంకరింగ్) చేయించడం.
5. సమకాలీన భాషాసమస్యలపై / ఉద్యమాలపై/సాంఘిక సమస్యలపై 'బృందచర్చ' (Group Discussion)
6. తెలుగుభాషా దినోత్సవం/అంతర్జాతీయ మాతృభాషా దినోత్సవం మొదలైన రోజుల్లో జరిగే సాంస్కృతిక కార్యక్రమాలు విద్యార్థులచేత నిర్వహింపజేయడం, వాటిపై సమీక్షలు/పత్రికా ప్రకటనలు రాయించడం.

7. సమకాలీన సంఘటనలపై సామాజిక మాధ్యమాల్లో/ టి.వి.ల్లో జరిగే చర్చలను నమోదు చేసి సంకలనం చేయడం.

8. సాంస్కృతిక / చారిత్రక ప్రాశస్త్యం కలిగిన కట్టడాలు, దేవాలయాలు, కళానిలయాలను 'బృందపర్యటన/ క్షేత్ర పర్యటన' ద్వారా విద్యార్థులచేత సందర్శింపజేయడం.

ANDHRA UNIVERSITY
B.Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
I Year Semester- II
FRUITS AND VEGETABLE PRESERVATION
(CREDITS 2+0=2)

Unit – 1: Introduction to fruits and vegetables 1. Fruits: Definition, elementary knowledge on types of fruits (fleshy and dry) with local /common examples. 2. Vegetables: Definition, elementary knowledge on types of vegetables (root, leafy, stem, flower and fruit) with local/common examples. 3. Importance of fruits and vegetables in human nutrition. 4. Concept of perishable plant products – maturation and spoilage, shelf life; preservation – definition and need for preservation of fruits and vegetables.

Unit – 2: Preservation of Fruit 1. Fruits – ripening and biological aging; storage and preservation concerns. 2. Preservation of fresh fruits at room temperature and in cold storage. 3. Fruit preservation at room temperature as juices, squashes and syrups. 4. Preservation of fruits by application of heat; making of fruit products (jams, jellies and fruit slices in processing factories). 5. Preservation by dehydration (Eg. banana chips), application of sugar (Eg. mango candy), application of salt (pickling). 6. Fruit preservation by freezing – storage at the lowest temperatures.

Unit – 3: Preservation of vegetables 1. Vegetables – losses after harvesting and causes; problems in handling and storage. 2. Modern methods of packaging and storage to reduce losses. 3. Trimming of vegetables and packing in cartons; dehydration technique -factory processing. 4. Making of vegetable products (flakes/chips of potato and onion; garlic powder). 5. Frozen vegetables – Carrots, Cauliflower, Okra and Spinach. 6. Preservation of sliced vegetables in factories by canning and bottling. 7.

Suggested Co-curricular activities

1. Assignments/Group discussion/Quiz/Model Exam.
2. Invited lecture and demonstration by local expert
3. Exhibition of various types of locally available fruits and vegetables
4. Hands on training on handling and packaging methods of fresh fruits and vegetables.
5. Hands on training on making fruit juices.
6. Display of various preserved fruit products available in local markets.
7. Hands on training on making of potato, yam, onion chips.
8. Display of various preserved vegetable products available in local markets.
9. Watching videos on preservation of fruits and vegetables.
10. Visit to Horticulture University or research station to learn about value added products of fruits and vegetables.

Suggested text books/reference books:

1. Giridharilal, G. S. Siddappa and G.L.Tandon(2007) Preservation of Fruits and Vegetables, Indian Council of Agri. Res., New Delhi
2. Srivastava, R.P., and Sanjeev Kumar (2019) Fruit and Vegetable Preservation: Principles and Practices, CBS Publishers & Distributors Pvt., Ltd., New Delhi
3. Thompson, A.K. (1995) Post-Harvest Technology of Fruits and Vegetables. Blackwell Sci.,U.K.
4. Verma, L.R. and V.K. Joshi (2000) Post-Harvest Technology of Fruits and Vegetables. Indus Publ., New Delhi

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2023-24 Admitted Batch
I Year Semester- II

FRUITS AND VEGETABLES PRESERVATION

MODEL QUESTION PAPER

Max. Marks: 50

Time: 1½ hrs (90 Minutes)

SECTION- A

(4x5M=20 Marks)

Answer any four questions. Each answer carries 5 marks

(At least 1 question should be given from each Unit)

- 1) Give the classification of foods according to their storage.
- 2) Spoilage of Vegetables
- 3) Biological ageing of fruits
- 4) Frozen Okra
- 5) Pickling
- 6) Add a short note on fruit slicing.
- 7) Properties of glass containers used in packing
- 8) Write about the causes for post harvesting losses.

SECTION-B

(3x10M = 30 Marks)

Answer any three questions. Each answer carries 10 marks

(At least 1 question should be given from each Unit)

- 1) What is a fruit? Explain different types of fruits.
- 2) What are the various methods of preservation of fruits by freezing?
- 3) Write an essay on how Jam is prepared?
- 4) Explaining different environmental factors controlling fruit ripening.
- 5) Write an essay on processing of Vegetables.

ANDHRA UNIVERSITY
B.Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
I Year Semester- II
AGRICULTURAL MARKETING
(CREDITS 2+0=2)

Unit- I:

Introduction of Agriculture and agricultural products (including agriculture, horticulture, sericulture, floriculture, aquaculture- genetic culture and dairy product) - Agricultural Marketing - Role of marketing - Concepts - Goods and services - Movement of product from farm to consumer –Middlemen – Moneylenders - Types of agricultural markets (basic classification).

Unit- II:

Basic structure and facilities of an agricultural market – Primary, secondary and tertiary markets–Functioning of Market Yards–Market information - RythuBharosaKendras (RBK) - Govtmarket policies and regulations- Contract farming -Govt Apps for marketing of agri products.

Unit- III:

Planning production – assembling – grading - transportation– storage facilities.Price fixation. Dissemination of market information –and role of ICT.Marketing - Mix- Product element- Place element- Price element- Promotion element. Selection of target market. Government programs in support of Agricultural marketing in India.

Suggested Co-curricular Activities:

1. Study visit to agricultural marketsand RythuBharosaKendras (RBK)
2. Invited lecture by field expert
3. Survey of various involved activities e.g.assembling, grading, storage, transportation and distribution
4. Identify the demand for food processing units
5. Application of Govt Apps as one Nation and one Market
6. Assignments, Group discussion, Quiz etc.

Reference books

- 1.S.S.Acharya&N.L.Agarwala, Agricultural Marketing in India - Oxford and IBH Publications
2. K.S.Habeeb - Ur - Rahman Rural Marketing in India - Himalaya publishing
3. S.S.Chinna Agricultural Marketing in India - KALYANI publishers
4. Publications of National Institute of Agricultural Marketing

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
I Year – Semester II
2023-24 Admitted batch
AGRICULTURE MARKETING

MODEL QUESTION PAPER

Max. Marks: 50

Time: 1½ hrs (90 Minutes)

SECTION – A

Answer any Four questions. Each question carries Five marks?

(4*5=20)

1. What are the advantages of contract farming?
2. What are the functions of Rythu Bharosa Kendras (RBK)?
3. What is the difference between speculation vs hedging?
4. What is the role of NABARD in Agricultural marketing finance?
5. What is marketing channel and give one example for any crop.
6. What are the components of basic market structure?
7. What are the advantages of Grading?
8. Explain different packing materials used in product market.

SECTION – B

Answer any three questions. Each question carries Ten marks

(3*10=30)

1. What are the different marketing functions and explain them in detail?
2. What are the differences in marketing of agricultural and manufactured goods?
3. A. What are the aims and objectives of ISI and
B. AGMARK
4. A. What is the importance of agricultural marketing
B. Define marketable surplus and marketed surplus. What are the factors affecting marketable surplus?
5. A. What is market and list out classification of markets.
B. Classify markets based on competition and write the characteristic features of each market with example.

ANDHRA UNIVERSITY
B.Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
I Year Semester- II
PRINCIPLES OF AGRONOMY
(CREDITS 4+0=4)

UNIT- I

- Crops and their classification
- Factors affecting crop production

UNIT – II-

- Tillage- Types - Objectives
- Modern concepts of tillage-Crop establishment methods

UNIT – III-

- Manures and fertilizers- Fertilizer application

UNIT – IV-

- Irrigation management, methods of irrigation
- Cropping patterns and cropping systems

UNIT – V-

- Weed management- Sustainable agriculture
- Integrated farming systems- organic agriculture

Reference Books

Reddy, S R and Reddi Ramu 5th edition 2016, -kalyani publishers, Ludhiana.
Principles of agronomy Authors: T. Yellamanda Reddy and G.H Sankara Reddy

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
I Year Semester – II
INTRODUCTION TO AGRONOMY
MODEL QUESTION PAPER

Time: 3 Hours

Maximum: 75 Marks

SECTION – A

Answer any FIVE questions. Each question carries equal marks. (5*5 = 25)

1. What do you mean by sustainable agriculture? Mention the Features of Sustainable agriculture.
2. Write a note on tillage and list out the importance of tillage.
3. Discuss about zero tillage and Stubble nuclear tillage.
4. Differentiate between manures and fertilizers.
5. What do you mean by Cropping system and Cropping pattern.
6. What is a Crop? Classify the crops.
7. Write about green manuring.
8. Explain the factors effecting crop production.

SECTION – B

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

- 1.a) Write a detailed note on Integrated Farming System (IFS).

(OR)

- b) Discuss about Organic Farming.

2. a) What do you mean by fertilizers? Write a note on methods of fertilizer application.

(OR)

- b) Future Scope of Organic agriculture.

3. a) What is a Weed? Describe the methods of Weed control.

(OR)

- b) What do you mean by manures? List out the most Familiar manures.

4. a) Write a detailed note on modern concepts of tillage.

(OR)

- b) Write an essay on Crop establishment methods.

5. a) What is irrigation? List out the methods or types of irrigation.

(OR)

- b) Mention the objectives and importance of tillage.

ANDHRA UNIVERSITY
B.Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
I Year Semester- II
INTRODUCTION TO SOIL SCIENCE
(CREDITS 4+0=4)

UNIT – I

- Soil Components- Soil air, Soil water, Organic and inorganic solids
- Properties of Soil Mixture, Pore Space, Bulk Density, Particle Density, Aeration, Drainage, compaction, Surface area, Soil water relations.

UNIT – II

- Morphology of Colloids & Biological Properties of Soil - Chemistry of clays, Ionic exchange, Acidity, alkalinity, PH, and salinity relations
- Liming and Acidification, Soil Organic matter, C:N relations, N Transformations, Soil organisms, Sulphur transformation.

UNIT – III

- Genesis and Classification - Profile, Soil forming factors, Soil distribution, Classification of Systems
- Drainage, Erosion: Mechanisms and Control.

UNIT – IV

- Soil fertility and productivity, plant nutrition – essential nutrients
- Functions, deficiency symptoms, correction measures and toxicity symptoms of nutrients in plants. Primary nutrients, secondary nutrients and micro nutrients

UNIT V

- Sources, forms, mobility, transformations, fixations and losses of plant nutrients
- Nutrient interactions
- Soil fertility analysis

References

1. Indian Society of Soil Science.2012. Fundamentals of Soil Science. IARI, New Delhi.
2. Yawalkar K.S, Agarwal, T.P and Bokde, S 1995. Manures and Fertilisers. Agril. Publishing House, Nagpur
3. Samuel Tisdale, Nelson Werner L, Beaton James D and Havlin John L. 2005. Soil Fertility and Fertilizers: An Introduction to Nutrient Management, Macmillian Publishing Co., New York.
4. D. K .Das 2014. Introductory Soil Science. Kalyani Publishers, New Delh

ANDHRA UNIVERSITY
B.Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
I Year Semester- II
INTRODUCTION TO SOIL SCIENCE
MODEL QUESTION PAPER

Time: 3 Hours

Maximum: 75 Marks

SECTION – A

Answer any **FIVE** questions. Each question carries equal marks. (5*5 = 25)

1. Discuss about the profile of the Soil.
2. Write a note on soil Air and Soil water.
3. Write a note on classification of soil.
4. Write briefly about soil forming factors
5. What are inorganic solid and explain.
6. Give a brief account on soil organic matter
7. Difference between soil fertility and productivity.
8. What are the criteria of essentiality and classify the essential nutrients.

SECTION – B

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

1. a) What do you mean the seep out of top soil? What were types of it.
(OR)
b) What is drainage? Write its types.
2. a) Write a detailed note on soil relations.
(OR)
b) What is ion? What do you mean by ionic exchanger? Discuss about cat ion exchange capacity.
3. a) Write an essay on soil organic matter? Its importance for flora & Fauna of soil.
(OR)
b) Write about the chemistry of soil? Discuss about bulk and practical density.
4. a) Write a note on Porosity of soil.
(OR)
b) Discuss about nitrogen transformation in detailed manner.
5. a) What are the functions of primary nutrients and their deficiency symptoms
(OR)
b) Write a note on sulphur transformation.

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
I Year Semester – II
FUNDAMENTALS OF GENETICS
(CREDITS 3+1=4)

UNIT – I

- Gene expression and differential gene activation – Operon concept – Lac Operon
- Meiosis – definition – process – differences between mitosis and meiosis – significance in plant breeding
- linkage – definition – linkage groups – characteristic features of linkage – pleiotropy – linkage groups
- Crossing over – mechanism of crossing over – types of crossing over – factors effecting crossing over – cytological proof of crossing over in *Drosophila* – significance of crossing over in plant breeding – coincidence – interference

UNIT – II

- Mendel's Laws – Law of segregation – Law of independent assortment – Principle of dominance – Principle of unit characters – exceptions to Mendel's Laws
- Monohybrid and dihybrid ratios – modifications of F₂ ratio in monohybrid and dihybrid crosses and lethal factors

UNIT - III

- Gene action – types of gene action – pleiotropism – alleles – characteristic features of alleles
- multiple alleles (blood groups in human beings) – characteristic features of multiple alleles –
- Penetrance (complete penetrance and incomplete penetrance) and expressivity (uniform expressivity and variable expressivity) – sex determination

UNIT – IV

- Gene mutations – introduction – definition – terminology – classification of mutations – characteristic features of mutations – spontaneous mutations and induced mutations
- Gene mutations – artificial induction of mutations – physical and chemical mutagens
- Chromosomal aberrations – structure – types of structural chromosomal aberrations – deletions (deficiencies) and duplications

UNIT - V

- Numerical chromosomal aberrations – terminology – classification – euploidy and aneuploidy – kinds of polyploids – autopolyploids, allopolyploids and segmental allopolyploids
- Numerical chromosomal aberrations – euploidy – monoploids – haploids – differences between monoploids and haploids – diploidy – polyploidy – origin of polyploidy – induction of polyploidy – triploids – tetraploids
- Numerical chromosomal aberrations – polyploidy
- Numerical chromosomal aberrations – aneuploidy – types of aneuploids – monosomics, double monosomics, nullisomics, double nullisomics, trisomics (primary, secondary and tertiary trisomics) and tetrasomics

References

1. Gupta, P.K. 1985. Cytology, Genetics and Cytogenetics. Rastogi Publications, Meerut.
- Gupta, P.K. 2007. Genetics. Rastogi Publications, Meerut.
2. Pundhan Singh, 2000. Elements of Genetics. Kalyani Publishers, Ludhiana.
3. Singh, B.D. 2007. Fundamentals of Genetics. Kalyani Publishers, Ludhiana.
4. Strickberger, M.W. 2004. Genetics. Prentice – Hall of India Pvt. Ltd., New Delhi.
5. Verma, P.S. and Agarwal, V.K. 2005. Cell Biology, Genetics, Molecular Biology, Evolution and Ecology. S. Chand and Co., New Delhi

FUNDAMENTALS OF GENETICS (PRACTICAL)

1. Study of microscope.
2. Study of cell structure.
3. Practice on mitotic cell division.
4. Practice on meiotic cell division.
5. Practice on meiotic cell division.
6. Probability and Chi-square test.
7. Monohybrid and its modifications.
8. Dihybrid.

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
I Year Semester – II
FUNDAMENTALS OF GENETICS
MODEL QUESTION PAPER

Time: 3 Hours

Maximum: 75 Marks

SECTION – A

Answer any **FIVE** questions. Each question carries equal marks. (5*5 = 25)

1. What are the characteristics of Mutations.
2. Explain lac operon concept of general regulation with neat labelled diagram.
3. Differentiate between linkage & crossing over.
4. Explain Mendel's law of heredity with suitable examples.
5. Explain the experiment to show cytological proof of crossing over.
6. Explain the different types of structural chromosomal aberration with suitable illustrations.
7. What is meant by gene action. Explain the types of gene action.
8. Write about linkage groups.

SECTION – B

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

1.a) Explain the stages in meiosis with diagrams.

(OR)

b) What is polyploidy? Give the significance of polyploidy in plant breeding.

2. a) Differentiate between mitosis & meiosis.

(OR)

b) Explain lethal gene action with the help of suitable example.

3. a) Define gene interaction? Explain any two of the gene interactions with help of suitable examples.

(OR)

b) Explain different models of sex determination in plants.

4. a) Explain about the special types of chromosomes.

(OR)

b) Explain the principle of dominance and the exceptions to Mendel's laws.

5. a) Explain the Phenomenon of multiple allele with the help of an appropriate example.

(OR)

b) Write about classification, Characteristics of linkage

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
II Year Semester – III

1.	Introduction to public administration	Multi-disciplinary course	2+0=2
2.	Plant nursery	Skill enhancement course	2+0=2
3.	Agronomy of field crops	Major subject	3+1=4
4.	Manures, fertilizers and soil fertility management	Major subject	3+1=4
5.	Introduction to Entomology	Major subject	3+1=4
6.	Introduction to Plant Pathology	Major subject	3+1=4
7.	Horticulture	Minor subject	3+1=4
TOTAL			19+5=24

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
II Year Semester – III
INTRODUCTION TO PUBLIC ADMINISTRATION
(CREDITS 2+0=2)

Unit: I

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

Unit: II

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

Unit: III

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. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
II Year Semester- III
PLANT NURSERY
(CREDITS 2+0=2)

Unit-1: Introduction to plant nursery

1. Plant nursery: Definition, importance.
2. Different types of nurseries –on the basis of duration, plants produced, structure used.
3. Basic facilities for a nursery; layout and components of a good nursery.
4. Plant propagation structures in brief. 5. Bureau of Indian Standards (BIS-2008) related to nursery.

Unit- 2: Necessities for nursery.

1. Nursery beds – types and precautions to be taken during preparation.
2. Growing media, nursery tools and implements, and containers for plant nursery, in brief.
3. Seeds and other vegetative material used to raise nursery in brief.
4. Outlines of vegetative propagation techniques to produce planting material.
5. Sowing methods of seeds and planting material.

Unit-3: Management of nursery.

1. Seasonal activities and routine operations in a nursery.
2. Nursery management – watering, weeding and nutrients; pests and diseases.
3. Common possible errors in nursery activities.
4. Economics of nursery development, pricing and record maintenance.
5. Online nursery information and sales systems.

Suggested Co-curricular activities

1. Assignments/Group discussion/Quiz/Model Exam.
2. Demonstration of nursery bed making.
3. Demonstration of preparation of media for nursery.
4. Hands on training on vegetative propagation techniques.
5. Hands on training on sowing methods of seeds and other material.
6. Invited lecture cum demonstration by local expert.
7. Watching videos on routine practices in plant nurseries.
8. Visit to an agriculture/horticulture /forest nursery.
9. Case study on establishment and success of a plant nursery.

Suggested text books/reference books:

1. Ratha Krishnan, M., et.al. (2014) Plant nursery management: Principles and practices, Central Arid Zone Research Institute (ICAR), Jodhpur, Rajasthan
2. Kumar, N., (1997) Introduction to Horticulture, Rajalakshmi Publications, Nagercoil.
3. Kumar Mishra, K., N.K. Mishra and Satish Chand (1994) Plant Propagation, John Wiley & Sons, New Jersey

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2023-24 Admitted Batch
II Year – Semester III
PLANT NURSERY
MODEL QUESTION PAPER

Max. Marks: 50

Time: 1½ hrs (90 Minutes)

SECTION- A

(4x5M=20 Marks)

Answer any four questions. Each answer carries 5 marks
(At least 1 question should be given from each Unit)

1. Define nursery. Give its importance.
2. Give the basic facilities of a nursery.
3. Write briefly about the plant propagation structures
4. Give an account of the types of nursery beds
5. Describe the tools of a nursery
6. Write about the seeds used in raising nursery
7. Give the outlines of vegetative propagation techniques
8. Explain the routine operations in a nursery

SECTION- B

(3x10M = 30 Marks)

Answer any three questions. Each answer carries 10 marks (At least
1 question should be given from each Unit)

9. Give a detailed account of the different types of nurseries
10. Give an account of the layout and the components of a good nursery
11. Write an account of the bureau of Indian standards (BIS-2008) related to a nursery
12. Describe the vegetative materials to raise nursery
13. Give a detailed account of the nursery management

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
II Year – Semester III
AGRONOMY OF FIELD CROPS
(CREDITS 3+1=4)

UNIT-I:

- CEREALS: Rice, wheat, Maize

UNIT-II:

- MILLETS: Sorghum, Pearl millet, Finger millet, Proso millet, Kodo millet, Foxtail millet, Little millet, Barnyard millet

UNIT-III:

- PULSES: Pigeon pea, Green gram, Black gram, Bengal gram, Peas, Horse gram, Cowpea

UNIT-IV:

- OIL SEEDS: Ground nut , Sesame, Sunflower, Castor, Rape seed, mustard, safflower, niger,

UNIT-V:

- COMMERCIAL & FIBER CROPS: Sugarcane, Tobacco, Cotton, Jute, Mestha, Sunhemp

Reference Books

1. Reddy , S R and Reddi Ramu 5th edition 2016, Agronomy of Field Crops- kalyani publishers, Ludhiana.
2. Chidda Singh, singh ,P and Singh R, Modern Techniques of Raising field crops-oxford publishing house, New Delhi.
 3. Rajendra Prasad 2004 text book of Field Crop Production Volume i, Volume ii
 4. Panda S C 2014 Agronomy of Fodder a forage crops, kalyani publishers Ludhiana

AGRONOMY OF FIELD CROPS (PRACTICAL)

1. Identification of cereals, millets, pulses, oil seed, sugar and fibre crops in the crop cafeteria.
2. Practicing various nursery types and main field preparation for field crops.
3. Acquiring skill in different seed treatment techniques in important field crops.
4. Estimation of plant population, seed rate and fertilizer requirement for important field crops.
5. Acquiring skill in field preparation, sowing and manuring of crops under pure and intercropping situations for field crops.
6. Acquiring skill in using seed drill for sowing operations.
7. Observations on growth parameters of cereals, millets, pulses, green manures and forage crops.
8. Study on yield parameters and estimation of yield in field crops.
9. Collection of seeds of field crops.

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
II Year Semester – III
AGRONOMY OF FIELD CROPS
MODEL QUESTION PAPER

Time: 3 Hours

Maximum: 75 Marks

SECTION – A

Answer any **FIVE** questions. Each question carries equal marks.

(5*5 = 25)

1. Differentiate between *Corchorus capsularis* & *Corchorus Olitorius*.
2. Explain about Sorghum effect.
3. Write about Retting process of Jute.
4. Write down the Nutritional values of Bajra & finger millet
5. Classification of wheat with scientific names
6. Write briefly about different types of nurseries practiced in Rice.
7. Write down common names, scientific names and their origins of all major & minor millets.
8. Write about by products of sugarcane.

SECTION – B

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

(5*10 = 50)

1. a) Write down the importance of pulses in india.
(OR)
b) Write down the importance of oilseeds in india.
2. a) Write about SRI Method of rice cultivation.
(OR)
b) Write about all planting methods of sugarcane.
3. a) Write general package of practices of millets.
(OR)
b) Write about package of practices of maize.
4. a) Write about nutrient management of Rice, wheat & Maize.
(OR)
b) Write about nutrient management of Groundnut, Cotton & Sunflower.
5. a) write about water and nutrient management in wheat
(OR)
b) Write seed rate, sowing, nutrient Management, Water Management, Weed Management, harvesting & yield of Rice.

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
II Year Semester- III
MANURES, FERTILIZERS AND SOIL FERTILITY MANAGEMENT
(CREDITS 3+1=4)

UNIT I

- Manures – classification of manures – bulky organic manures - methods of composting – concentrated organic manures – green manures – biogas plant – vermicomposting

UNIT II

- Commercial fertilizers – straight fertilizers – Nitrogen fertilizers – phosphorus fertilizers – potassic fertilizers

UNIT – III

- Complex fertilizers – mixed/ bulk blended fertilizers – secondary nutrient fertilizers – micronutrient fertilizers – fertilizer control order and regulations

UNIT IV

- Methods of fertilizer application – Seed coating, pelletization, seedling dipping – Nutri seed pack – Soil Application – Foliar spray – Fertigation – water soluble fertilizers, fertigation scheduling (Fertilizer – water interaction, fertilizer solubility, comparison of fertilizer application methods).

UNIT V

- Nutrient management concepts – INM, STCR, IPNS, SSNM and RTNM. Nutrient use efficiencies of major and micronutrients and enhancement techniques (Soil, Cultural and Fertilizer strategies) - Soil health – Quality indices and their management

References

1. **Indian Society** of Soil Science. 2012. Fundamentals of Soil Science. IARI, New Delhi.
2. Yawalkar K.S, Agarwal, T.P and Bokde, S 1995. Manures and Fertilisers. Agril. Publishing House, Nagpur
3. Samuel Tisdale, Nelson Werner L, Beaton James D and Havlin John L. 2005. Soil Fertility and Fertilizers: An Introduction to Nutrient Management, Macmillian Publishing Co., New York.
4. D. K .Das 2014. Introductory Soil Science. Kalyani Publishers, New Delhi

MANURES, FERTILIZERS AND SOIL FERTILITY MANAGEMENT (PRACTICAL)

1. Introduction to analytical instruments and principles-spectrometry and flame photometry
2. Estimation of available N in soils
3. Estimation of available P in soils
4. Estimation of available K in soils
5. Estimation of available S in soils
6. Estimation of available Ca and Mg in soils
7. Estimation of available Zn in soils
8. Basic of plant analysis and estimation of N in plant samples
9. Estimation of P in plant samples
10. Estimation of K&S in plant samples

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
II Year Semester – III
MANURES, FERTILIZERS AND SOIL FERTILITY MANAGEMENT
MODEL QUESTION PAPER

Time: 3hrs

Maximum marks: 75

SECTION – A

Answer any **FIVE** questions. Each question carries equal marks. (5*5 = 25)

1. Give an account on nutrient content of different fertilizers and manures
2. Write a note on Fertilizer Control Order.
3. Write about concept of Integrated Nutrient Management
4. What are fertilizers and manures? Give a detailed differentiation of fertilizers and manures
5. Briefly explain soil health and management
6. Write a short note on SSNM and RTNM.
7. What is green manuring and explain about green manure crops.
8. Explain the procedure of vermicomposting.

SECTION – B

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

(5*10 = 50)

1. Write about different methods of fertilizer application
(OR)
Discuss nutrient use efficiencies of nutrients and enhancement techniques.
2. Write and explain detailed classification of fertilizers
(OR)
Explain about biogas plant
3. Write short note on different composting techniques
(OR)
Write an essay on specialty/ complex/ mixed fertilizers
4. Discuss different types of manures in detail
(OR)
What is fertigation? Explain. Give in detail about fertigation scheduling.
5. Write about different nutrient management concepts and explain them
(OR)
Write about manufacturing process for Urea, DAP and MOP

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
II Year – Semester III
INTRODUCTION TO ENTOMOLOGY
(CREDITS 3+1=4)

UNIT I

- History of Entomology in India
- Antenna, mouthparts, legs, wings and sense organs

UNIT II

- Anatomy and physiology - digestive, excretory, respiratory, circulatory systems

UNIT III

- Nervous and reproductive systems in insects in brief
- Insect systematics; Distinguishing characters of agriculturally important orders and families of Hexapoda. Characters of Apterygota

UNIT IV

- Exopterygota (Ephemeroptera, Odonata, Orthoptera, Phasmida, Dictyoptera, Embioptera, Dermaptera, Hemiptera, Isoptera, Psocoptera, Mallophaga, Thysanoptera and Siphunculata).

UNIT V

- Taxonomy of Endopterygota - Distinguishing characters of agriculturally important families of Lepidoptera, Coleoptera, Diptera, Hymenoptera, Siphonaptera, Neuroptera and Strepsiptera.

INTRODUCTION TO ENTOMOLOGY (PRACTICAL)

1. Observations on external features of grasshopper / cockroach,
2. Methods of insect collection, preservation – Preparation of Riker mount.
3. Types of insect head, antenna, mouth parts – Structure of thorax.
4. Types of insect legs, wings and their modifications – wing coupling.
5. Structure of abdomen, and its modifications.
6. Metamorphosis in insects – immature stages in insects.
7. Study of digestive and reproductive systems of grasshopper / cockroach
8. Observing the characters of agriculturally important orders and families.

REFERENCES

1. Vasanthraj David. B and Rama murthy VV 2016 Elements of Economic Entomology, popular book depot, Coimbatore
2. Vasanthraj David. B and Ananthakrishnan T.N.2016. General and applied Entomology , Tata McGraw-Hill publishing house, New Delhi.
3. Nair MRGK 1986, Insects and Mites of Crops in India, ICAR, New Delhi.
4. Khare, S.P 1993 Stored Grain Pests and their Management, kalyani publishers, Ludhina

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
II Year – Semester III
2023-24 Admitted batch
INTRODUCTION TO ENTOMOLOGY
MODEL QUESTION PAPER

Time: 3 hrs

Maximum: 75 marks

SECTION – A

Answer any FIVE questions. Each question carries Five marks (5*5=25)

1. Write about insect antenna and enlist different types of antennae with suitable examples.
2. What is moulting and write about stages and hormones involved in process of moulting.
3. Write about process of digestion in insects.
4. Explain the respiratory system of an insect
5. Write about different parts of insect leg and give a detailed account on different types of insect legs with suitable examples.
6. Write in detail about insect circulatory system.
7. Write about piercing and sucking type of mouthparts.
8. Characters of isoptera.

SECTION – B

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

9. A. Write about digestive system of insects.
(OR)
B. Differentiate between Apterygota and Pterygota? Explain any two orders of Apterygota and Pterygota respectively
10. A. Elaborate the characteristics of order lepidoptera.
(OR)
B. Write about insect wings, wing venation, different types of wings and wing flexing/ coupling mechanisms.
11. A. Write about types of reproduction in insects and explain male reproductive system.
(OR)
B. Write about the female reproductive system of an insect
12. A. Write about excretory system of an insect
(OR)
B. Write about the order hymenoptera
13. A. Write about the nervous system of an insect
(OR)
B. Elaborate the characteristics of order coleoptera.

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
II Year Semester – III

INTRODUCTION TO PLANT PATHOLOGY
CREDITS (3+1=4)

UNIT I:

- Fungi: General characters, definition of fungus, somatic structures, 2.2 Types of fungal thalli, fungal tissues, modifications of thallus, 2.3 Reproduction (asexual and sexual)

UNIT II:

- Bacteria – General Characters, Classification of plant pathogenic bacteria Important plant bacterial diseases and their causal agents. Mollicutes: Phyto plasma and Spiroplasma – General characters and important diseases and vectors

UNIT III:

- Fastidious vascular Bacteria – general characters and important diseases and vectors Viruses: General characters of plant viruses, nature, architecture
- Symptoms of various viral diseases, transmission of plant viruses. Important plant viral diseases and their vectors.

UNIT IV:

- Viroids, phanerogamic plant parasites and plant parasitic nematodes, viroids – General characters and important diseases
- Phanerogamic plant parasites – general characters, propagation, survival and their hosts Plant parasitic nematodes—general characters and important plant parasitic nematodes.

UNIT V:

- Survival of Plant Pathogen- Dispersal of Pathogen- Active and Passive- Infection process – pre-penetration, penetration and post-penetration. Defense mechanism in plants – structural, induced defense in plants. Host plant resistance.

INTRODUCTION TO PLANT PATHOLOGY (PRACTICAL)

1. Study of lab equipments.
2. Preparation of PDA (Potato Dextrose Agar).
3. Preparation of NA (Nutrient Agar).
4. General study of different structures of fungi.
5. Study of symptoms of various plant diseases.
6. Staining and identification of plant pathogenic bacteria.
7. Study of phanerogamic parasites.
8. 30 Herbarium.

REFERENCES

1. Introductory Mycology- 1996 C. J. Alexopoulos C. W. Mims and M. Blackwell, John Wiley and Sons Ltd. N. York.
2. Introduction to Mycology –1990 R. S. Mehrotra and K. R. Aneja, Wiley E. Ltd. New Delhi
3. Plant Pathogens- The Fungi – 1982 R. S. Singh, Oxford and IBH Publishing Co., New Delhi.
4. Introduction to Plant Viruses – 1987 C. L. Mandahar, Chand and Co., Pvt Ltd., New Delhi.
5. Fungicides in Plant disease control – Nene Y L and Thapliyal P N 1993 Oxford & IBM Publishing Co., New Delhi.
6. Introduction to Principles of Plant Pathology – Singh R. S. 1984. Oxford & IBH Publishing Co., New Delhi.
7. Principles of Plant Pathology – Das Gupta M. K. 1999. Allied Publishers, Pvt. Ltd. New Delhi.
8. Plant Pathology. Concepts and Laboratory Exercise. Trigiano, R.N., Windham, M.T. and Windham. A.S. (eds), 2004. CRC Press, New York.

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
II Year – Semester III
2023-24 Admitted batch
INTRODUCTION TO PLANT PATHOLOGY
MODEL QUESTION PAPER

Time: 3 hrs

Maximum: 75 marks

SECTION – A

Answer any FIVE questions. Each question carries Five marks?

(5*5=25)

1. What are the general characteristics of fungi and modifications of its thallus?
2. Explain about symptoms of bacterial diseases and their causal organisms.
3. Give an account on phanerogamic plant parasites
4. What is vector? write about importance and different types of vectors in disease transmission
5. Explain about general characteristics of phytoplasmas and spiroplasmas
6. Write about general characters of plant parasitic nematodes.
7. Write briefly about Passive dispersal of Plant Pathogen by Insects.
8. Write a short note on the 3 stages of Disease Infection Process.
- 9.

SECTION – B

Answer ALL the questions. Each question carries Ten marks

(5*10=50)

- 10.A. Write in detail about reproduction (both sexual and asexual) in fungi

(OR)

B. Write about the source of survival of pathogens.

11. A. Give a detailed account of classification of fungi.

(OR)

B. Write about different fungal thalli and its somatic structures

11. A. Write about characters of viroids and important diseases caused by them

(OR)

B. Give an account on characters of virus, symptoms of diseases and vectors of transmission

12. A. Write an essay on diseases caused by plant parasitic nematodes

(OR)

B. Write about classification of bacteria

13. A. Explain about different symptoms and diseases caused by phytoplasmas and spiroplasmas along with their vectors of transmission

(OR)

B. Write about different fastidious vascular bacteria and diseases caused by them

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B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
II Year Semester- III
HORTICULTURE
(CREDITS 3+1=4)

UNIT-I

- Propagating structures- Plant propagation- Methods - Sexual and asexual – Propagation by cuttings – Definition of cutting – Stem cuttings – Leaf cuttings – Root cuttings.
- Propagation by Layering - Types of layering (tip, simple, compound, mound, trench, air layering) - Natural modifications of layering (runners, suckers, stolon, offset)- Propagation by separation - Bulbs, corms; division (rhizome, stem tuber, tuberous roots).

UNIT II

- Grafting, budding -Rootstock and scion selection – Grafting methods – Attached scion methods of grafting, simple or approach grafting, detached scion methods of grafting (side grafting - Veneer grafting, apical grafting- epicotyl grafting, double, soft wood grafting, cleft grafting, tongue grafting, whip grafting) - Graft incompatibility – Types – Translocated and localized incompatibility; Budding – Methods of budding – T-budding, inverted T-budding, patch budding and ring budding - Top working.
- Principles of orchard establishment – Points to be kept in mind while selecting site for the establishment of orchards - Principles and steps in orchard establishment - Layout of orchards – Systems of planting - Square, rectangle, quincunx, hexagonal and contour systems of planting-their merits and demerits.

UNIT-III

- Principles and methods of training and pruning - Definition of training, objectives and training, principles and methods of training of fruit crops - Open centre, closed centre and modified leader systems their merits and demerits - Definition of pruning, objectives of pruning, principles and methods of pruning of fruit crops.
- Pollination - Self and Cross pollination, pollinizers and pollinators Fertilization and parthenocarpy – Types.

UNIT-IV

- Types of vegetables Gardens – Kitchen Garden, market garden, truck garden, vegetable forcing, garden for processing, seed production garden and floating garden. Ornamental garden types – Formal – Informal – Wild Garden – Parts/ features of an ornamental garden.
- Lawn making - Preparation of soil – Drainage – Digging – Manuring and grading – Methods of planting – Sowing of seeds – Dibbling – Turfing – Maintenance of lawn – Mowing – Rolling – Sweeping –Scraping – Raking – Weeding – Irrigation – Top dressing with compost and fertilizers - Diseases and other problems – Fairy ring – Pale Yellow Laws.

UNIT-V

- Use of plant bio-regulators (PBR) in horticulture – Introduction – Applications of PBR in fruit crops.
- Irrigation methods in horticulture crops - Different methods followed in horticultural crops (check basin, furrow, ring basin, basin, flood, pitcher, funnel, drip and sprinkler).
- Fertilizer application- Different methods of application to horticultural crops- Broad casting, top dressing, localized placement, contact placement Band placement, row placement, pellet, foliar application, starter solution, fertigation.

HORTICULTURE (PRACTICAL)

1. Identification of garden tools.
2. Identification of horticultural crops.
3. Layout of different planting systems.
4. Layout of kitchen garden.
5. Preparation of nursery bed (raised and flat beds) and sowing of seeds.
6. Practice of different asexual methods by divisions.
7. Practice of different asexual methods by cuttings.
8. Practice of different asexual methods by grafting.
9. Practice of different asexual methods by budding.
10. Practice of different asexual methods by layering.
11. Training and pruning of fruit trees.
12. Transplanting and care of vegetable seedlings.
13. Making of herbaceous and shrubbery borders.
14. Preparation of potting mixture, potting and repotting.
15. Fertilizer application in different crops.
16. Visits to commercial nurseries/orchard.

References

1. Chadha, K.L. 2001. *Handbook of Horticulture*. ICAR, New Delhi.
2. Jitendra Singh, 2012. *Basic Horticulture*. Kalyani Publishers. New Delhi.
3. Randhawa, G.S. and Mukhopadhyaya, A. 1994. *Floriculture in India*. Allied Publishers Pvt. Ltd., New Delhi
4. Kumar, N. 1997. *Introduction to Horticulture*. Rajyalakshmi Publications, Nagorcoil, Tamilnadu.

ANDHRA UNIVERSITY
B. VOCATIONAL COURSE
AGRICULTURE (Honours)
2023-24 Admitted Batch
II Year Semester- III
HORTICULTURE
MODEL QUESTION PAPER
SECTION – A

Time: 3 Hours

Maximum: 75 Marks

Answer any FIVE questions. Each question carries equal marks. (5*5=25)

1. Give the steps in orchard establishment.
2. Write about the advantages of Seed Propagation.
3. What are the types of propagation by Separation?
4. Write about T or Shield budding.
5. What are the responses of plants to pruning?
6. Describe the methods of training of fruit crops.
7. What is parthenocarpy and write about its types.
8. Write briefly about the maintenance of lawn.

SECTION - B

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

1. a) What is cutting and give various propagations by cutting.
(OR)
b) What are the criteria for the selection of a site for orchard establishment?
2. a) Explain about different systems of planting in Horticultural crops.
(OR)
b) Explain different types of Layerings in Plant propagation.
3. a) Write about the systems of Training in Fruit crops with merits and demerits.
(OR)
b) Write about the Practical applications of Plant growth regulators in Horticulture crops.
4. a) Write briefly about the types of Vegetable gardens.
(OR)
b) Mention various methods of Irrigation of Horticultural crops and explain about Drip and sprinkler Methods.
5. a) Give the objectives, principles and the methods of pruning of fruit crops.
(OR)
b) Write about different methods of fertilizer application in Horticultural crops.

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
II Year Semester- IV

1.	Health and hygiene	Multi-disciplinary course	2+0=2
2.	Disaster management	Skill enhancement course	2+0=2
3.	Pests of field crops and their management	Major subject	3+1=4
4.	Diseases of field crops and their management	Major subject	3+1=4
5.	Principles of plant breeding	Major subject	3+1=4
6.	Principles of organic farming	Minor subject	3+1=4
7.	Production technology of fruits and vegetables	Minor subject	3+1=4
Total			19+5=24
Short term internship/Apprenticeship of 180 hrs with 4 credits. Student is eligible for Exit option-2 with the award of Diploma.			

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
II Year Semester- IV
HEALTH AND HYGIENE
(CREDITS 2+0=2)

Unit I: Basics of Nutrition

1. Nutrition – definition, importance, Good nutrition and mal nutrition; Balanced Diet: Basics of Meal Planning
2. Carbohydrates –functions, dietary sources, effects of deficiency.
3. Lipids –functions, dietary sources, effects of deficiency.
4. Proteins –functions, dietary sources, effects of deficiency.
5. Brief account of Vitamins- functions, food sources, effects of deficiency,
6. Macro and micro minerals –functions, effects of deficiency; food sources of Calcium, Potassium and Sodium; food sources of Iron, Iodine and Zinc
7. Importance of water– functions, sources, requirement and effects of deficiency.

Unit II: Health

8. Health - Determinants of health, Key Health Indicators, Environment health & Public health; Health-Education: Principles and Strategies
9. Health Policy & Health Organizations: Health Indicators and National Health Policy of Govt. of India-2017; Functioning of various nutrition and health organizations in India viz., NIN (National Institution of Nutrition), FNB (Food and Nutrition Board), ICMR (Indian Council of Medical Research), IDA (Indian Dietetics Association), WHO-India, UNICEF-India
10. National Health Mission: National Rural Health Mission (NRHM) Framework, National Urban Health Mission (NUHM) Framework
11. Women & Child Health Care Schemes: Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCH+); Janani Shishu Suraksha Karyakaram (JSSK); Rashtriya Bal Swasthya Karyakram (RBSK); India Newborn Action Plan (INAP); Adolescent Health- Rashtriya Kishor Swasthya Karyakram (RKSK)
12. Disaster Management – Containment, Control and Prevention of Epidemics and Pandemics – Acts, Guidelines and Role of Government and Public

Unit III: Hygiene.

13. Hygiene – Definition; Personal, Community, Medical and Culinary hygiene; WASH (Water, Sanitation and Hygiene) programme
14. Rural Community Health: Village health sanitation & Nutritional committee (Roles & Responsibilities); About Accredited Social Health Activist (ASHA); Village Health Nutrition Day, Rogi Kalyan Samitis
15. Community & Personal Hygiene: Environmental Sanitation and Sanitation in Public places
16. Public Awareness through Digital Media - An Introduction to Mobile Apps of Government of India: NHP, Swasth Bharat, No More Tension, Pradhan Mantri Surakshit Mantritva Abhiyan (PM Suman Yojana), My Hospital (Mera asptaal), India fights Dengue, JSK Helpline, Ayushman Bhava, Arogya Setu, Covid 19AP

REFERENCES

- Bamji, M.S., K. Krishnaswamy & G.N.V. Brahman (2009) Textbook of Human Nutrition(3rd edition) Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi
- Swaminathan (1995)Food & Nutrition(Vol I, Second Edition) The Bangalore Printing &Publishing Co Ltd., , Bangalore – Vijaya Khader (2000)Food, nutrition & health, Kalyan Publishers, New Delhi
- Srilakshmi, B., (2010)Food Science, (5th Edition) New Age International Ltd., New Delhi

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
II Year Semester- IV
DISASTER MANAGEMENT
(CREDITS 2+0=2)

UNIT-I-

Introduction of Disaster - Different types of disasters- Natural- (flood, cyclone, earthquake, famine and pandemic) - Accidental- (Fire, Blasting, Chemical leakage, Rail, Aviation, Road boat tragedies and nuclear pollution) - Disaster Management Act 2005

UNIT-II-

Causes and immediate effects of Disasters - Preparedness of disasters –Precautions – Dissemination of information - Nature and concepts - Role of National Disaster Management Authority and Role of Government and non-governmental organizations in protecting human livestock and natural resources.-Use of technology -Role of Citizens and Youth in the prevention.

UNIT-III -

Post disaster effects - short term - Procedures for Rehabilitation and Recovery - Role of volunteers and Safety Precautions - Long term remedial and preventive measures – Collection, filing and storage of information - Case studies

Suggested co curriculum Activities:

1. Invite lectures by local experts
2. Training on preparedness, post disaster services
3. Analysis of Case studies
4. Visit to a disaster management office and facility
5. Assignments, Group discussion, quiz etc.

References:

1. Jagbirsingh - Disaster Management Future challenges and opportunities- -K.W.Publishers
2. GOI - UNDP Disaster Management Guidelines
3. J.P.Singhal - Disaster Management - Laxmi Publications
4. www.ndma.gov.in
5. Wikipedia and other websites on Disaster management

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
II Year Semester- IV
DISASTER MANAGEMENT
MODEL QUESTION PAPER

Max marks: 50

Time: 1hr 30mts

Section – A

Answer any four(4) questions. Each question carries 5 marks

4X5=20 marks

1. Define Disaster. How cyclone is caused? Classify cyclones.
2. What is drought? Explain the different management aspects in drought situation.
3. Explain various firefighting methods.
4. Explain the role of citizens and youth in prevention and management of disasters.
5. Write in detail about the post disaster effects of Tsunami
6. What measures are to be taken in protection of livestock during flood and cyclone?
7. Explain in brief about the Disaster management act 2005.

Section – B

Answer any three(3) questions. Each question carries 10 marks **3X10=30 marks**

1. Write an essay on National disaster management authority (NDMA) of India.
2. What are the various natural disasters? Explain in detail about any two natural disasters.
3. What are the various measures that have to be adopted in prevention of Road and boat tragedies?
4. What are the long term remedial and preventive measures in disaster management?
5. Write an essay on earthquake.

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2022-24 Admitted Batch
II Year – Semester III
PESTS OF FIELD CROPS AND THEIR MANAGEMENT
(CREDITS 3+1=4)

UNIT: I

- Pests of Cereals and Millets Distribution, bionomics, symptoms of damage and management strategies for insect pests and integrated pest management of rice, wheat, maize and sorghum.

UNIT II

- Pests of Pulses and Oilseeds Distribution, bionomics, symptoms of damage and management strategies of insect pests and integrated pest management of pulses (grams, cowpea.), groundnut, castor, sunflower and mustard.

UNIT III

- Pests of Cotton and Sugarcane Distribution, bionomics, symptoms of damage and management strategies of insect pests and integrated pest management of cotton and sugarcane.

UNIT IV

- Pests of Stored Products, bionomics, symptoms of damage and management strategies.

UNIT V

- Rodents and birds of agricultural importance and their management. Locusts and their management.

PESTS OF FIELD CROPS AND THEIR MANAGEMENT (PRACTICAL)

1. Pests of rice
2. Pests of maize, sorghum
3. Pests of wheat and ragi
4. Pests of grams and cowpea
5. Pests of groundnut, gingelly and sunflower
6. Pests of castor, soybean, safflower and mustard
7. Pests of cotton
8. Pests of sugarcane
9. Pests of stored products
10. Gadgets for management of stored product insects.
11. Calculation on the doses and their application techniques
12. Assessment of losses in stored grain pests, fumigation of grains stored in godowns
13. Visit to nearest FCI/AWC/SWC godown.

Reference Books

1. Vasanthraj David. B and Rama murthy VV 2016 Elements of Economic Entomology, popular book depot, Coimbatore
2. Vasanthraj David. B and Ananthakrishnan T.N.2016. General and applied Entomology , Tata McGraw-Hill publishing house, New Delhi.
3. Nair MRGK 1986, Insects and Mites of Crops in India, ICAR, New Delhi.
4. Khare, S.P 1993 Stored Grain Pests and their Management, kalyani publishers, Ludhina.

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2023-24 Admitted Batch
II Year Semester – IV

PESTS OF FIELD CROPS AND THEIR MANAGEMENT

MODEL QUESTION PAPER

Time: 3 Hours

Maximum: 75 Marks

SECTION – A

Answer any **FIVE** questions. Each question carries equal marks. (5*5 = 25)

1. Write down symptoms and management for Brown Plant Hopper and Green Leaf Hopper of paddy.
2. Write down symptoms and management for Stem borer and Corn worm or ear worm of maize.
3. Write down symptoms and management for Red hairy caterpillar and leaf hopper.
4. Write down symptoms and management for yellow stem borer in paddy.
5. Write down symptoms and management for Root grub and Leaf miner of groundnut.
6. Write down symptoms and management for Pink bollworm and American boll worm of cotton.
7. Write down symptoms and management for Sugarcane scales and sugarcane pyrilla
8. List out the Internal and External feeders with their scientific names of stored grain pest.

SECTION – B

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

1. a) Write down IPM practices of Paddy.

(OR)

- b) Write down symptoms and management for Mustard saw fly, Groundnut aphid and sorghum gall fly.
2. a) Write down IPM practices of Pulses.

(OR)

- b) Write down symptoms and management for termites, castor shoot borer, and castor jassids.
3. a) Write down IPM practices of Cotton.

(OR)

- b) Write down symptoms and management for spotted boll worm, Red cotton bug, and cotton thrips.
4. a) Write down IPM practices of Stored grain pest.

(OR)

- b) Write down symptoms and management for Ragi pink borer, sorghum ear head bug, and sorghum midge.
5. a) Write down the management practices for Rodents

(OR)

- b) List out the pests of birds and locusts with their scientific names and their management.

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B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
II Year Semester – IV
DISEASES OF FIELD CROPS AND THEIR MANAGEMENT
CREDITS (3+1=4)

UNIT I

- Principles of plant disease management. Physical methods and biological methods. Protection – Classification of fungicides based on chemical nature and method of application. Integrated disease management.

UNIT II

- Diseases of Cereals, Millets and their Management- Rice, Maize, Sorghum, Bajra and Ragi.

UNIT III

- Diseases of Pulses and oil seeds and their Management- Red Gram, Black Gram and Green Gram Ground nut, Sun Flower and Sesamum.

UNIT IV

- Diseases of Cash crops and vegetable crops and their Management- Cotton, Sugar cane, Brinjal, Chilli, Tomato and Bhendi.

UNIT V

- Diseases of Fruits and their Management- Mango, Papaya, Banana and Citrus

(PRACTICAL)

1. Survey and assessment of important plant diseases
2. Methods of application of fungicides
3. Special methods of application – acid delinting, pseudostem injection, root feeding, pairing and pralinage, trunk injection
4. Mass multiplication of Trichoderma spp and method of application
5. Identification of Rice and Millets Diseases
6. Identification of Diseases on Pulses
7. Identification of Diseases on Oil Seeds
8. Identification of Diseases on Commercial Crops
9. Identification of Diseases on Vegetables
10. Identification of Diseases on Fruits

REFERENCES:

1. Introductory Mycology- 1996 C. J. Alexopoulos C. W. Mims and M. Blackwell, John Wiley and Sons Ltd. N. York.
2. Introduction to Mycology –1990 R. S. Mehrotra and K. R. Aneja, Wiley E. Ltd. New Delhi
3. Plant Pathogens- The Fungi – 1982 R. S. Singh, Oxford and IBH Publishing Co., New Delhi.
4. Introduction to Plant Viruses – 1987 C. L. Mandahar, Chand and Co., Pvt Ltd., New Delhi.
5. Fungicides in Plant disease control – Nene Y L and Thapliyal P N 1993 Oxford & IBM Publishing Co., New Delhi.
6. Introduction to Principles of Plant Pathology – Singh R. S. 1984. Oxford & IBH Publishing Co., New Delhi.
7. Principles of Plant Pathology – Das Gupta M. K. 1999. Allied Publishers, Pvt. Ltd. New Delhi. 8. Plant Pathology. Concepts and Laboratory Exercise. Trigiano, R.N., Windham, M.T. and Windham. A.S. (eds), 2004. CRC Press, New York.

ANDHRA UNIVERSITY
B. VOCATIONAL COURSE
AGRICULTURE (Honours)
2023-24 Admitted Batch
II Year Semester- IV
DISEASES OF FIELD CROPS AND THEIR MANAGEMENT
MODEL QUESTION PAPER

SECTION - A

Answer any **FIVE** questions. Each question carries equal marks.

(5*5=25)

1. Any two diseases of green gram and their casual organisms.
2. What are Phytoalexins, write about their characters with examples.
3. Write about Antibiosis and its types.
4. Write about Integrated disease management
5. Write the Symptoms of Ergot and Downy Mildew of Sorghum.
6. Differentiate Early and late Tikka diseases in Ground nut and give their management.
7. Write about the symptoms, Disease cycle, favorable conditions and management of YMV in Black and Green gram.
8. Write about the symptoms and management of Banana Panama wilt.

SECTION - B

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

(5*10=50)

1. a) Explain different biological methods for plant protection.

(OR)

b) Give a brief account of any two diseases of sorghum with pathogens, symptoms and control

2. a) Write about the Eradication methods in Plant disease management.

(OR)

b) Write about classification of fungicides based on chemical nature.

3. a) List out the diseases of Rice with causal organism and write about the symptoms, spread and management of Rice Blast.

(OR)

b) List out the diseases of Red gram and write about the symptoms and management of wilt and sterility mosaic diseases.

4. a) List out the diseases of Sugarcane with causal organism and write about the symptoms, spread and management of Red Rot.

(OR)

b) List out the diseases of Coconut with causal organism and write about the symptoms, spread and management of Ganoderma Stem rot.

5. a) Write about the symptoms and Management of Chilli Die back and Little leaf of brinjal.

(OR)

b) Write about the symptoms and management of Mango Anthracnose and Malformation diseases.

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
II Year – Semester IV
2023-24 Admitted batch
PRINCIPLES OF PLANT BREEDING

(CREDITS 3+1=4)

UNIT-I-

- Self – incompatibility and male sterility- genetic consequences, cultivar options; Domestication, Acclimatization, introduction, Centre of origin/diversity.

UNIT-II-

- Genetic basis and breeding methods in self-pollinated crops-mass and pure line selection, hybridization techniques and handling of segregating population.

UNIT-III-

- Multiline concept; Concepts of population genetics and Hardy Weinberg Law.
- Genetic basis and methods of breeding cross pollinated crops, modes of selection.

UNIT-IV-

- Heterosis and inbreeding depression, development of inbred lines and hybrids, composite and synthetic varieties
- Breeding methods in asexually propagated crops, clonal selection and hybridization.

UNIT-V

- Wide hybridization and pre-breeding; Polyploidy in relation to plant breeding; mutation breeding- methods and uses.

(PRACTICAL)

- Plant Breeder's kit; Study of germplasm of various crops;
- Study of floral structure of self-pollinated and cross pollinated crops;
- Emasculation and hybridization techniques in self & cross pollinated crops;
- Consequences of inbreeding on genetic structure of resulting populations;
- Study of male sterility system; Handling of segregation populations;
- Methods of calculating mean, range, variance, standard deviation.
- Designs used in plant breeding experiment, analysis of Randomized Block Design;
- Estimation of heterosis, inbreeding depression and heritability;
- Layout of field experiments;
- Work out the mode of pollination in a given crop and extent of natural out crossing;
- Prediction of performance of double cross hybrids.

REFERENCES

1. Principles of Plant Breeding (1st & 2nd Edition) by RW Allard,
2. Breeding Field Crops by JM Poehlman,
3. Plant Breeding: Principles & Practices by JR Sharma,
4. Genetics by Strickberger, and
5. An introduction to genetic analysis by Suzuki et Al.

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
III Year – Semester IV
2023-24 Admitted batch
PRINCIPLES OF PLANT BREEDING
MODEL QUESTION PAPER

Time: 3 hrs

Maximum: 75 marks

SECTION – A

Answer any FIVE questions. Each question carries Five marks?

(5*5=25)

1. Mass selection
2. Hardy Weinberg Law
3. Heterosis
4. Back cross
5. Merits of synthetic varieties
6. Domestication
7. Inbreeding depression
8. Clonal selection

SECTION – B

Answer ALL the questions. Each question carries Ten marks

(5*10=50)

8. a) Write an essay on types of pollination in plants
(or)
b) Write an essay on self-incompatibility
10. a) Write an essay on Genetic bases of Heterosis and inbreeding depression
(or)
b) Write an essay on Pedigree method of hybridization in plant breeding
11. a) Describe the introduction method in plant breeding
(or)
b) Describe the hybridization method in plant breeding
12. a) Write an essay on mutation breeding
(or)
b) Describe the breeding methods in asexually propagated plants.
13. a) Describe breeding methods in self pollinated crops.
(or)
b) Describe breeding methods in cross pollinated crops.

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
II Year – Semester IV
PRINCIPLES OF ORGANIC FARMING
CREDITS (3+1=4)

UNIT - I

- Organic farming – definition – need – scope – principles – characteristics - relevance to modern agriculture.
- Different ecofriendly farming systems- biological farming, natural farming, regenerative agriculture – permaculture - biodynamic farming.
- Relevance of organic farming to A.P, India, and global agriculture and future prospects- advantages - barriers.

UNIT - II

- Initiatives taken by the central and state governments, NGOs and other organizations for promotion of organic agriculture in India.
- Organic nutrient sources and their fortification – organic manures- methods of composting
- Green manures- bio fertilizers – types, methods of application – benefits and limitations.

UNIT - III

- Nutrient use in organic farming-scope and limitations.
- Nutrient management in organic farming.
- Organic ecosystem and their concepts.
- Choice of crops and varieties in organic farming – crop rotations – need and benefits – multiple cropping.

UNIT - IV

- Fundamentals of insect, disease and weed management under organic mode of production-cultural-biological methods-non chemical pest & disease management.
- Botanicals- pyrethrum, neem seed kernel extract, neem seed powder, soluble neem formulations, neem oil.
- Operational structure of NPOP – other agencies for organic production.

UNIT - V

- Inspection – certification - labelling and accreditation procedures for organic products.
- Processing, - economic consideration and viability.
- Marketing and export potential of organic products – national economy

PRINCIPLES OF ORGANIC FARMING (PRACTICAL)

1. Visit to organic farm to study the various components, identification and utilisation of organic products.
2. Compost making- aerobic and anaerobic methods
3. Vermicompost preparation
4. Preparation of enriched farm yard manure
5. Visit to organic clusters and bio control lab to study the maintenance of bio-fertilizers/bio-inoculant cultures
6. Biological nitrogen fixers.
7. Methods of application of Bio-pesticides (Trichocards, BT, NPV)
8. Preparation of neem products and other botanicals for pest and disease control
9. Preparation of green pesticides (panchagavya, beezamrutam, jeevamrutam, ghanajeevamrutam, dravajeevamrutam).
10. Different methods of biofertiliser applications.

References

2. Arun K. Sharma. 2002. A Hand book of organic farming. Agrobios, India. 627p.
3. Palaniappan, S.P and Annadurai, K.1999. Organic farming-Theory and Practice. Scientific publishers, Jodhpur,India. 257p.
4. Mukund Joshi and Prabhakarasetty, T.K. 2006. Sustainability through organic farming. Kalyani publishers, New Delhi. 349p.
5. Balasubramanian, R., Balakishnan, K and Siva Subramanian, K. 2013. Principles and practices of organic farming. Satish Serial Publishing House. 453p
6. Tarafdar, J.C., Tripathi, K.P and Mahesh Kumar, 2009. Organic AGRICULTURE (Honours). Scientific Publishers, India. 369p.
7. Tiwari, V.N., Gupta, D.K., Maloo, S.R and Somani, L.L. 2010. Natural, organic, biological, ecological and biodynamic farming. Agrotech Publishing Academy, Udaipur. 420p.
8. Dushyent Gehlot. 2005. Organic farming- standards, accreditation, certification and inspection. Agrobios, India. 357p

ANDHRA UNIVERSITY
B. VOCATIONAL COURSE
AGRICULTURE (Honours)
2023-24 Admitted Batch
II Year Semester- IV
PRINCIPLES OF ORGANIC FARMING
MODEL QUESTION PAPER
SECTION – A

Time: 3 Hours

Maximum: 75 Marks

Answer any FIVE questions. Each question carries equal marks.

(5*5=25)

1. What are the essential characteristics of Organic Farming?
2. What is Vermicomposting and write about Vermiculture.
3. What are the desirable characters of Green Manuring?
4. Write about the Indore and bangalore method of composting?
5. Write about weed management in Organic farming.
6. Write briefly about zero budget natural farming.
7. Write about the Economic considerations of Organic Culture.
8. Write about different types of Biofertilizers used in Organic Farming.

SECTION - B

Answer all the questions. Each question carries TEN marks.

(5*10=50)

1. a) Write about the Principles of Organic farming.
(OR)
b) What are the components in organic farming for Sustainable crop production?
2. a) What are the Advantages of Organic farming?
(OR)
b) What are the Government policies on promoting Organic farming?
3. a) Write about different types of Organic manures.
(OR)
b) Write briefly about biological methods of Insect pest Management in Organic farming?
4. a) Write about the Operational structure of NPOP.
(OR)
b) Write about the Accreditation procedures for Organic Products.
5. a) Write about the concepts of Organic ecosystem.
(OR)
b) Write about the Marketing and Export potential of Organic farming

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
II Year Semester – IV
PRODUCTION TECHNOLOGY OF FRUITS AND VEGETABLES
(CREDITS 3+1=4)

UNIT – I

- Fruits- Mango, Banana, Citrus, Grape - Botanical Name – Family – Origin – Area – Production- Improved varieties and cultivation practices such as time of sowing - Sowing - Transplanting techniques - Planting distance - Fertilizer requirements - Irrigation - Weed management - Harvesting - Yield - Storage

UNIT – II

- Guava, Sapota, Papaya, Botanical Name – Family – Origin – Area – Production- Improved varieties and cultivation practices such as time of sowing - Sowing - Transplanting techniques - Planting distance - Fertilizer requirements - Irrigation - Weed management - Harvesting - Yield - Storage

UNIT – III

- Importance of vegetables and spices in human nutrition and national economy
- Classification of vegetables - 1) Botanical 2) Based on Hardiness 3) Parts Used 4) Method of culture 5) Season.
- Tomato, Brinjal, Chilli, Okra - Botanical Name – Family – Origin – Area – Production- Improved varieties and cultivation practices such as time of sowing - Sowing - Transplanting techniques - Planting distance - Fertilizer requirements - Irrigation - Weed management - Harvesting - Yield - Storage

UNIT – IV

- Cucurbits – Flowering, sex expression, sex ratio - Cucumber, Ridge gourd, Bitter gourd, Bottle gourd - Botanical Name – Family – Origin – Area – Production- Improved varieties and cultivation practices such as time of sowing - Sowing - Transplanting techniques - Planting distance - Fertilizer requirements - Irrigation - Weed management - Harvesting – Yield
- Cole crops- Cabbage and Cauliflower - Botanical Name – Family – Origin – Area – Production- Improved varieties and cultivation practices such as time of sowing - Sowing - Transplanting techniques - Planting distance - Fertilizer requirements - Irrigation - Weed management - Harvesting - Yield

UNIT – V

- Peas and beans (Cluster bean, French bean, Dolichos) Botanical Name – Family – Origin – Area – Production- Improved varieties and cultivation practices such as time of sowing - Sowing - Transplanting techniques - Planting distance - Fertilizer requirements - Irrigation - Weed management - Harvesting - Yield
- Root crops (Carrot and Radish) - Botanical Name – Family – Origin – Area – Production- Improved varieties and cultivation practices such as time of sowing - Sowing - Transplanting techniques - Planting distance - Fertilizer requirements - Irrigation - Weed management - Harvesting – Yield

- Bulb crops – Onion and Garlic - Botanical Name – Family – Origin – Area – Production- Improved varieties and cultivation practices such as time of sowing - Sowing - Transplanting techniques - Planting distance - Fertilizer requirements - Irrigation - Weed management - Harvesting – Yield

PRODUCTION TECHNOLOGY OF FRUITS AND VEGETABLES (PRACTICAL)

1. Identification of vegetables and their seeds.
2. Identification of Fruit crops and their seeds.
3. Nursery raising techniques of vegetable crops.
4. Direct seed sowing and transplanting.
5. Study of morphological characters of different vegetables.
6. Study of morphological characters of different Fruits.
7. Intercultural operations in vegetable crops.
8. Fertilizers application methods.
9. Seed extraction methods in vegetables.
10. Seed extraction methods in Fruits.
11. Harvest indices and maturity standards of vegetable crops.
12. Harvesting and preparation for market.

References

1. Pranab Hazra, A. Chattopadhyay, K. Karmakar and S. Dutta. 2010. *Modern Technology in Vegetable Production*. New India Publishing Agency, New Delhi.
2. Neeraj Pratap Singh, .2007. *Basic Concepts of Vegetable Science*. International Book Distributing Co. New Delhi. Academic Press, New Delhi.
3. Nempal Singh, Singh, D.K., Singh, Y.K. and Virendra Kumar. 2006. *Vegetable Seed Production Technology*. International Book Distributing Co. Lucknow.
4. Prem Singh Arya and S. Prakash 2002. *Vegetables Growing in India*. Kalyani publishers, New Delhi

ANDHRA UNIVERSITY
B. VOCATIONAL COURSE
AGRICULTURE (Honours)
2023-24 Admitted Batch
III Year Semester- IV
Production Technology of Fruits and Vegetables
MODEL QUESTION PAPER

SECTION - A

Answer any FIVE questions. Each question carries equal marks.

(5*5=25)

1. Write the importance of spices in human nutrition and national economy?
2. Write about the Propagation methods in Banana.
3. What is Papain and write about Papain Extraction.
4. Give the botanical classification of Vegetables.
5. Write about the varieties of Brinjal based on colour and shape of fruit.
6. Write about the flowering and Sex expression in Cucurbits.
7. Write about the Interculture practice in Bitter Gourd.
8. Irrigation and weed management of Dolichos.

SECTION - B

Answer all the questions. Each question carries TEN marks.

(5*10=50)

1. a) Write briefly about Hybrid varieties of Mango.
(OR)
b) Write about the Intercultural operations in Banana.
2. a) Write about different types of propagations in Citrus.
(OR)
b) Write about different Training systems in Grapes.
3. a) Write about the Importance of Vegetables in Human Nutrition.
(OR)
b) Discuss the improved varieties, fertilizer requirement, irrigation and weed management in Tomato.
4. a) Write about the package of practices in Cauliflower.
(OR)
b) Differentiate between the types of Carrot and Write about the Importance and Classification of Dolichos Bean.
5. a) Write about Cucurbits and List out all the Cucurbitaceous vegetables with Scientific names.
(OR)
b) Answer the following
 1. Harvesting, Curing, Storage and Bolting in Onion
 2. Importance of Garlic

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
III Year – Semester V

1.	Rain fed Agriculture and watershed management	Major subject	3+1=4
2.	Weed and water management	Major subject	3+1=4
3.	Fundamentals of crop Physiology	Major subject	3+1=4
4.	Pests of horticultural crops and productive Entomology	Major subject	3+1=4
5.	Principles of seed technology	Minor subject	3+1=4
6.	Introduction to production economics and farm management	Minor subject	3+1=4
7.	Environmental education		2+0=2
TOTAL			20+6=26

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
III Year – Semester V
RAIN FED AGRICULTURE AND WATERSHED MANAGEMENT
(CREDITS 3+1=4)

UNIT - I

- Rainfed agriculture – introduction and definition – dimensions of the problem – area and production from dry lands in India and Andhra Pradesh –watersheds in India.
- Problems and prospects of rainfed agriculture in India – climate – rainfall pattern distribution – variabilities of rainfall – short rainy season – high intensity rainfall
- Problems and prospects of rainfed agriculture in India - soil characteristics – soil fertility status –soil moisture storage and retention capacity – heavy weed infestation-soil crust and their effect on crop growth and soils-its management.

UNIT - II

- Drought – definition – types of droughts – mechanism of crop adaptation under moisture deficit condition management strategies for drought.
- Tillage for rainfed crops – off-season tillage – primary tillage –secondary tillage – year-round tillage – sub soiling – setline cultivation – modern concepts of tillage- minimum tillage and zero tillage.
- Soil erosion – definition – losses due to erosion – types of water and wind erosion nature and extent of wind and water erosion – factors affecting erosion – universal soil loss equation

UNIT - III

- Management of crops in rainfed areas - Agronomic measures of soil and water conservation – choice of crop – crop geometry – tillage – contour cultivation – strip cropping – cover cropping – mulching – cropping systems and weed control- Mechanical measures of soil and water management.
- Watershed – definition – objectives and principles of water shed management components of watershed development programme – factors affecting watershed management.
- Water harvesting – importance, its techniques- Water harvesting structures – arid region – runoff farming – water spreading – micro catchments – semi arid region – farm ponds, check dams – percolation tank – dug wells – life saving irrigation

UNIT - IV

- *In-situ* moisture conservation measures – bund forming – bunding, ridge and furrow system conservation furrows- inter plot water harvesting, mulching – Broad Bed and Furrow (BBF) and leveling.
- Fertilizer use efficiency
- Efficient crops and varieties – cropping systems in rainfed areas – intercropping advantages – efficient inter cropping systems in different rainfed regions of Andhra Pradesh

UNIT - V

- Contingent crop planning for aberrant weather conditions in red and black soils.
- Evapotranspiration – measures to reduce evapotranspiration – weeding, use of mulches, chemicals, windbreaks and shelterbelts
- Land capability classification – alternate land use system
- Efficient utilization of water through soil and crop management practices - agronomic measures - mechanical measures for soil and water conservation – gully control – bench terraces – contour terracing – graded bund

RAIN FED AGRICULTURE (Honours) AND WATERSHED MANAGEMENT (PRACTICAL)

1. Climate classification.
2. Rainfall analysis - Mean, standard deviation, variance and CV.
3. Onset and withdrawal of monsoons and determination of length of growing crop season.
4. Study on cropping pattern of different dryland areas.
5. Scheduling of supplemental irrigation based on crop ET demand.
6. Calculation of effective rainfall.
7. Determination of moisture availability index.
8. Study of cultural practices for mitigating moisture stress (mulching, plant density, depth of sowing, thinning and leaf removal).
9. Study of farm ponds as a source of supplemental irrigation.

References

1. Reddy, S. R. and Prabhakar Reddy, G. 2015. Dryland agriculture. Kalyani Publishers.
2. Arnon, I. 1972. Crop Production in Dry Regions (Vol.I), Leonard Hill Pub. Co, London.
3. Dhruva Narayana, V.V., Sastry, G.S. and Patnaiak, V.S. 1999. Watershed Management in India. ICAR, New Delhi.
4. Jeevananda Reddy, S. 2002. Dryland agriculture in India: An agro-climatological and agro-meteorological perspective. B S publications.

ANDHRA UNIVERSITY
B. VOCATIONAL COURSE
AGRICULTURE (Honours)
2023-24 Admitted Batch
III Year Semester- V
Rainfed agriculture and Watershed Management

MODEL QUESTION PAPER

SECTION - A

Answer any FIVE questions. Each question carries equal marks (5*5=25)

1. Explain the mechanism of crop adaptation under moisture stress conditions.
2. Explain briefly the management strategies for drought conditions.
3. What is water erosion? explain the types of water erosion.
4. What is wind erosion? explain briefly the 3 stages of wind erosion.
5. Explain the principles and objective of watershed management
6. Explain about the water harvesting structures in arid-region.
7. Explain briefly about mechanical measures of soil and water management.
8. Explain about fertilizer use efficiency.

SECTION - B

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

1. a) What is watershed management? Explain the components of watershed development Programme.
(OR)
b) Write about briefly about the mechanism of wind and water erosion and write down the universal soil loss equation.
2. a) Explain briefly about crop management practices under rainfed areas.
(OR)
b) Explain briefly about the different methods of water harvesting in semi-arid regions
3. a) Explain briefly about the different in-situ moisture conservation techniques.
(OR)
b) Explain briefly about organic recycling and bio fertilizer use in rainfed areas.
4. a) Explain briefly about tillage operations carried out in rainfed conditions.
(OR)
b) Briefly elaborate about the modern concept of tillage.
5. a) Time and method of fertilizer application in rainfed areas.
(OR)
b) Briefly explain about the problems and prospects of rainfed agriculture in India.

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
III Year – Semester V
WEED AND WATER MANAGEMENT
(CREDITS 3+1=4)

UNIT-I

- Weed Biology and Ecology Weeds: Introduction, Definitions; harmful and beneficial effects, classification, propagation, dissemination and weed seed dormancy; Weed biology and ecology; Critical periods of crop weed competition and allelopathy. Principles of Weed Management Concepts of weed prevention, control and eradication; Methods of weed management: cultural, mechanical, chemical, biological and; Integrated weed management.

UNIT-II

- Herbicides: Definition – advantages and limitation of herbicide usage in India; Herbicide classification, formulations, methods of application; Introduction to Adjuvants. Weed management in field crops; aquatic, problematic, invasive alien weeds.

UNIT-III

- Importance and History of Irrigation: Role of water in plant growth – Importance of irrigation – Water resources and irrigation potential of India – History and development of irrigation in India – Soil – water– plant relationship – Soil Plant Atmospheric Continuum (SPAC) – Hydrological cycle – Absorption of water – Evapotranspiration – Plant water stress and its effect and methods to overcome stress.

UNIT-IV

- Crop Water Requirement and Management: Crop water requirement – consumptive use – Definition and estimation – Factors affecting water requirement – Effective rainfall – Critical stages for irrigation – Water requirement of crops – Water management for major field crops.

UNIT-V

- Scheduling of irrigation – Different approaches – Water use efficiency – Methods to improve WUE – Conjunctive use of surface and ground water. Quality of irrigation water – Agronomic practices for use of poor quality water (saline, effluent and sewage water) for irrigation.

References

1. Principles and practices of modern weed management by o.p. gupta
2. Principles and practices of weed management by t.k.das
3. Sharma, R.K. and Sharma, T.K. 1993. Irrigation and Drainage. Vol-I. Oxford IBH publishing Co.PVT.Ltd, New Delhi.

WEED AND WATER MANAGEMENT (PRACTICAL)

1. Identification, classification and characterization of terrestrial weeds.
2. Identification, classification and characterization of aquatic weeds and parasitic weeds.
3. Estimation of soil weed seed bank.
4. Identification, classification and characterization of herbicides.
5. Herbicide application techniques and spray equipment.
6. Land leveling and land shaping – Beds and channels – check basin – ridges and furrows-
border strips – broad bed furrow method of irrigation.
7. Operation and maintenance of sprinkler irrigation systems and drip irrigation systems.
8. Scheduling of irrigation based on simple techniques and devices.
9. Weed herbarium collection.

ANDHRA UNIVERSITY
B. VOCATIONAL COURSE
AGRICULTURE (Honours)
2023-24 Admitted Batch
III Year Semester- V
Weed and Water Management
MODEL QUESTION PAPER

SECTION – A

Answer any **FIVE** questions. Each question carries equal marks.

(5*5=25)

1. Explain briefly about weed seed dormancy.
2. Explain about the different modification structures adopted for dispersal by wind.
3. Explain briefly the role of water in plant growth.
4. Explain the critical period of crop weed competition.
5. Explain plant water stress and its effect and methods to overcome stress.
6. Explain briefly about allelopathy.
7. Explain briefly about the importance of irrigation and explain soil plant atmospheric (SPAC).
8. Mention some critical stages of irrigation in major crops.

SECTION – B

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

(5*10=50)

- b. a) explain briefly the principles of weed management.
(OR)
b) Explain the different methods of weed control.
 2. a) Explain briefly the herbicide classification and its formulation.
(OR)
b) Explain the different methods of herbicide application.
 3. a) Explain with a neat diagram about the hydrological cycle.
(OR)
b) Discuss about weed biology and ecology and add a note on allelopathy.
 4. a) Mention the water management briefly for major crops.
(OR)
b) What is water use efficiency? Explain different methods to improve water use efficiency.
- b. a) Mention the different methods of irrigation and explain them.
(OR)
b) Explain briefly about the agronomic practices for use of poor-quality water for irrigation.

ANDHRA UNIVERSITY
B. VOCATIONAL COURSE
AGRICULTURE (Honours)
2023-24 Admitted Batch
III Year Semester- V
FUNDAMENTALS OF CROP PHYSIOLOGY
CREDITS 3+1=4

UNIT – I

Absorption of water – Diffusion and osmosis – water potential and its components – Importance of water potential – Active and passive uptake of water – Stomatal complex – Transpiration – Water use efficiency – Water use efficiency of C3, C4 and CAM plants – Water requirement / Transpiration ratio- Factors affecting WUE. Assimilation of mineral nutrients – Nitrate assimilation – Ammonium assimilation in plants – Biological nitrogen fixation – Free-living and symbiotic bacteria – Nodule formation – Nitrogenase enzyme complex.

UNIT – II

Photosynthesis – Reactions of photosynthesis – Energy synthesis – Principle of light absorption by plants – Light reactions – Cyclic and non-cyclic photophosphorylation – CO₂ fixation – C3 and C4 pathways – Significance of C4 pathway – CAM pathway and its significance

UNIT – III

Photorespiration and its significance – Photosynthetic efficiency of C3, C4 and CAM plants – Factors affecting photosynthesis (light, CO₂, temperature and water stress). Respiration – Energy balance – Significance of respiration – Oxidative Pentose Phosphate Pathway (OPPP) and its significance.

UNIT – IV

Physiology of flowering – Photoperiodism and flowering – Importance of photoperiodism – Classification of plants based on photoperiodic responses – Flowering hormones – Vernalization and flowering – importance of vernalization in AGRICULTURE (Honours). Plant growth regulators – Auxins – mode of action and physiological roles – Commercial uses – Gibberellins – mode of action and physiological roles – Commercial uses – Cytokinins – mode of action and physiological roles – commercial uses – ABA – mode of action and physiological roles – Commercial uses – Ethylene – mode of action and physiological roles – Commercial uses.

UNIT – V

Post-harvest physiology – Dormancy – Types of dormancy – Advantages and disadvantages of dormancy – Fruit ripening – Climacteric and non-climacteric fruits – Metabolic changes during fruit ripening – Hormonal regulation of fruit ripening – Ripening induction and ripening inhibition – Seed viability and seed vigor – Tests of viability and vigor- Physiological maturity, harvestable maturity- Indices of physiological maturity in crops.

FUNDAMENTALS OF CROP PHYSIOLOGY (PRACTICAL)

Solutions- Preparation, Seed vigor and viability tests, optimum conditions for seed germination, leaf area measurement, Growth analysis, Measurement of water status in plants, Measurement of water potential, Measurement of Stomatal frequency and index photosynthetic pigments- Absorption spectrum, Leaf anatomy of C3 and C4 plants, Measurement of photosynthesis – Hill's reaction, Measurement of photosynthesis by IRGA, Effect of plant growth regulators on plant growth. Diagnosis of various nutrient deficiency symptoms in various Field and Horticultural crops, their Yield analysis.

References

Taiz, L. and Zeiger, E. 2010. *Plant Physiology* 5th edition, Sinauer Associates, Sunderland, MA, USA.

Gardner, F.P., Pearce, R.B., and Mitchell, R.L. 1985. *Physiology of Crop Plants*. Scientific Publishers, Jodhpur.

Noggle, G.R. and Fritz, G.J., 1983. *Introductory Plant Physiology*. 2nd Edition. Prentice Hall Publishers, New Jersey, USA.

ANDHRA UNIVERSITY
B. VOCATIONAL COURSE
AGRICULTURE (Honours)
2023-24 Admitted Batch
III Year Semester- V
FUNDAMENTALS OF CROP PHYSIOLOGY
MODEL QUESTION PAPER

Time: 3 Hours

Maximum: 75 Marks

SECTION – A

Answer any FIVE questions. Each question carries equal marks. (5*5=25)

1. State the advantages and disadvantages of dormancy.
2. What is photorespiration and explain.
3. Write about Non cyclic Phosphorylation.
4. Write Briefly about Biological Nitrogen fixation.
5. Describe the classification of plants based upon Photoperiodism.
6. Give the importance of photophosphorylation.
7. What are the factors effecting Fruit ripening and write about climacteric and non-climacteric fruits.
8. Write a short note on transpiration.

SECTION – B

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

- b. a) Write about C3 photosynthetic carbon assimilation cycle.
(OR)
b) What is water use efficiency and explain Factors effecting the Water use Efficiency.
2. a) Write about the components of Water potential and its Importance.
(OR)
b) Write about physiological roles of Ethylene and ABA.
3. a) Write about C4 Photosynthetic carbon assimilation cycle.
(OR)
b) Explain Oxidative Pentose pathway and its significance.
4. a) Write about the Physiological role of Auxins in Plants.
(OR)
b) What is fruit ripening. Give the metabolic changes during fruit ripening.
5. a) Write about commercial uses of Gibberelins and cytokinins
(OR)
b) Write about tests of seed viability and vigor.

ANDHRA UNIVERSITY
B. VOCATIONAL COURSE
AGRICULTURE (Honours)
2023-24 Admitted Batch
III Year Semester- V
PRINCIPLES OF SEED TECHNOLOGY
(CREDITS 3+1=4)

UNIT I – Introduction to seed and seed quality

- Seed – definition – Seed structure – Seed development and maturation Germination – phases of seed germination
- Dormancy – types of seed dormancy – Seed senescence – causes of seed senescence Seed quality characteristics – significance
- Classes of seed – Generation system of seed multiplication in seed supply chain .

UNIT II – Principles of seed production

- Seed replacement rate and varietal replacement – Seed Multiplication Ratio – Seed renewal period. Causes of varietal deterioration and maintenance Genetic and agronomic principles of seed production Factors affecting quality seed production
- Methods of seed production of varieties and hybrids.

UNIT III – Seed production techniques of agricultural crops

- Floral biology and pollination behavior – seed production techniques of varieties and hybrids of: rice, maize

UNIT IV – Seed production techniques of vegetable crops

- Floral biology and pollination behavior – seed production techniques of varieties and hybrids of: tomato, snakegourd, bittergourd, ashgourd, ribbed gourd and bottlegourd

UNIT V – Post harvest seed handling techniques Threshing – methods

- Drying – methods of seed drying – advantages and disadvantages Seed processing – definition – importance
- Seed cleaning and grading – upgrading – equipments – working principles
- Seed treatment – importance – types

PRINCIPLES OF SEED TECHNOLOGY (PRACTICAL)

1. Study of seed structure of agricultural and horticultural crops.
2. Seed dormancy breaking methods.
3. Acid delinting in cotton.
4. Detasseling techniques for hybrid seed production in maize.
5. Emasculation and dusting techniques for hybrid seed production in important field crops.
6. Practicing pre-germinative techniques, enhancing floral ratio and improving seed set in cucurbits
7. Fruit grading and seed extraction methods in vegetables – tomato, brinjal, chillies, bhendi and cucurbits.
8. Seed cleaning and grading techniques and detection of seed mechanical injury.
9. Collection of seeds.

REFERENCES

Principles of Seed Technology ; Author, P. K. Agrawal ; Contributor, Indian Council of Agricultural Research. Publications and Information Division

ANDHRA UNIVERSITY
B. VOCATIONAL COURSE
AGRICULTURE (Honours)
2023-24 Admitted Batch
III Year Semester- V
PRINCIPLES OF SEED TECHNOLOGY
MODEL QUESTION PAPER
SECTION – A

Time: 3 Hours

Maximum: 75 Marks

Answer any FIVE questions. Each question carries equal marks. (5*5=25)

1. Explain the safe guards for maintenance of genetic purity of seed.
2. Write a note on seed production methods for hybrids.
3. What is seed replacement rate and explain indetail.
4. What is seed dormancy? Explain different types seed dormancy?
5. Write about different classes of seeds.
6. Write about seed production technology of cucurbits.
7. What are the factors affecting quality seed production.
8. what is senescence? Write about significance along with it's causes.

SECTION – B

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

- b. a) Give a detailed note on seed production technology of Rice.

(OR)

- b) Discuss the procedure followed for Maize seed production technology.

2. a) Explain generation system of seed multiplication in seed supply chain.

(OR)

- b) What is seed drying and explain different methods of seed drying along with principles and requirements.

3. a) Write about seed production technology of Tomato.

(OR)

- b) Describe planning, layout and establishment of seed processing plant.

4. a) Write about seed cleaning and grading.

(OR)

- b) Write a detailed note on importance, types and equipment required for seed treatment.

5. a) i) Describe the causes of varietal deterioration.

- ii) Write the procedures for seed production of varieties.

(OR)

- b) What is seed? Explain seed structure and phases of its germination.

ANDHRA UNIVERSITY
B. Vocational courses
AGRICULTURE (Honours)
2023 -24 Admitted batch
III Year Semester V

PESTS OF HORTICULTURAL CROPS AND PRODUCTIVE ENTOMOLOGY
(CREDITS 3+1=4)

UNIT I

- Importance and history of sericulture – organizations involved in sericulture – silkworm types- mulberry cultivation – varieties – morphology of mulberry plant – methods of propagation – nursery and main field preparation – planting methods – identification of nutrient deficiency symptoms – identification of weeds – herbicide application methods – irrigation methods and management practices

UNIT II

- Rearing house – types – disinfection – room and bed disinfectants – egg incubation methods- chawki rearing- rearing of late age worms – spinning – Mounting mountages – harvesting- Physical and Commercial Characteristics of Cocoons. Defective Cocoons- Pests and diseases of silkworm and their management – post cocoon technology – stifling. By products of sericulture – non –mulberry silkworm

UNIT III

- Apiculture – Bee species – comparison- castes of bees, Morphology and Biology; Apiary management practices – bee pasturage, foraging, bee behavior and bee dance, seasonal variations; Honey Extraction, Bee products, properties and uses; Lac insect- Biology, Behaviour, Host Plants and strains – Inoculation, Harvesting and Processing; natural enemies of lac insect and lac products

UNIT IV

- Pests of vegetable crops and plantation crops – Distribution, bionomics, symptoms of damage and management strategies for insect, pest and integrated management of solanaceous, cucurbits, crucifers, root crops, coconut, cashew nut and bhendi

UNIT V

- Pests of fruit crops – Distribution, bionomics, symptoms of damage and management strategies for insect, pest and integrated management of mango, citrus, banana, guava, pomegranate, apple

PRACTICAL:

1. Identification of Insect Pests, Diseases and Nutrient deficiencies in Mulberry Garden.
2. Rearing house and appliances of Silk worm.
3. Pests and Diseases of Silk Worm.
4. Silk worm Cocoons- Mounting, Harvesting and Stifling.
5. Honey bee- Types of Bee Hives, Bee Rearing Equipment and Honey Extraction.
6. Insect Pests, Predators and Diseases of Honey Bee.
7. Lac- Inoculation, Harvesting and Processing.
8. Identification of Pests on Solanaceous Vegetable Crops and Bhendi.
9. Identification of Pests on Cruciferous and Cucurbit Vegetable crops.
10. Identification of Pests on Fruit Crops- mango, citrus, banana, guava. Xii. Identification of Pests on Fruit Crops- sapota, papaya, pomegranate, app

REFERENCES

1. Vasanthraj David. B and Rama murthy VV 2016 Elements of Economic Entomology, popular book depot, Coimbatore
2. Vasanthraj David. B and Ananthakrishnan T.N.2016. General and applied Entomology , Tata McGraw-Hill publishing house, New Delhi.
3. Nair MRGK 1986, Insects and Mites of Crops in India, ICAR, New Delhi.
4. 4. Khare, S.P 1993 Stored Grain Pests and their Management, kalyani publishers, Ludhina

ANDHRA UNIVERSITY
B. VOCATIONAL COURSE
AGRICULTURE (Honours)
2023-24 Admitted Batch
III Year Semester- V
Pests of Horticultural Crops and Productive Entomology
MODEL QUESTION PAPER
SECTION – A

Answer any FIVE questions. Each question carries equal marks. (5*5=25)

1. Write about the Planting systems of Mulberry.
2. Write about Nutrient deficiencies and their symptoms in Mulberry.
3. Write about the Pebrine disease of Silk worm.
4. Morphology of mulberry plants.
5. What is Bee Pasturing and Foraging?
6. Write about the inoculation methods of Lac and its precautions.
7. Write the differences between Chilli upward and downward curl.
8. What are the symptoms and control of Guava T Mosquito Bug and Mealy Bug.

SECTION – B

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

- b. a) Write about the Objectives, Precautions and Different types of Pruning in Mulberry.

(OR)

- b) Write about the Chawki Rearing of Young Silk worms.

2. a) Describe the types rearing houses for silkworm. Add a note on room disinfectants.

(OR)

- b) Write about different Species of Honey bee and their characters.

3. a) What are the different types of Lac Harvesting and write briefly about Lac Processing.

(OR)

- b) Write about the method of injury and Damage symptoms of the following pests.

- 1. Brinjal Shoot and Fruit Borer 2. Cucurbit Fruit Fly 3. Cabbage Diamond Back Moth**

4. a) Write about the Identification, Method of Injury, Symptoms of damage and the control of Mango Hoppers.

(OR)

- b) and List out the Major Pests of Bhendi and write about the symptoms of damage and control of fruit borer and whitefly.

5. a) List out the Major Pests of Coconut and Write about the symptoms and control of Black Headed Caterpillar.

(OR)

- b) Write about the identification marks of the citrus fruit sucking moths, their symptoms of damage and Management.

ANDHRA UNIVERSITY
B. VOCATIONAL COURSE
AGRICULTURE (Honours)
2023-24 Admitted Batch
III Year Semester- V
INTRODUCTION TO PRODUCTION ECONOMICS AND FARM MANAGEMENT
(CREDITS 3+1=4)

UNIT I: Production Economics and Farm Management - Nature and Scope

- Production Economics: Meaning, Definition and Nature and Scope – Farm Management: Definition and Objectives of farm management – Production Economics Vs. Farm Management – Farm Management Decisions: Decision making process – Scope of farm management – Types and Systems of farming: Types – Specialized, Diversified, and Mixed farming – Systems of farming: Peasant Farming, State Farming, Capitalistic, Collective and Co – operative Farming.

UNIT II: Factor – Product Relationship

- Factor – Product relationship: Meaning – Agricultural Production Function: Meaning, Definition – Laws of Returns: Increasing, Constant and Decreasing Returns – Classical production function and Three stages of production – Elasticity of production – Types / Forms of Production functions – Linear, Cobb–Douglas and Quadratic – Cost Concepts and Cost curves: Total, Average and Marginal Costs – Economies of Scale – Economies of Size - Determination of Optimum Input and Output – Physical and Economic Optimum.

UNIT III: Factor – Factor Relationship

- Factor – Factor relationship: Meaning - Isoquant: Definition and Types, Isoquant map – Marginal Rate of Technical Substitution – Factor Intensity – Isocline – Ridge Line – Returns to Scale – Elasticity of Factor Substitution – Isocost line – Principle of Factor Substitution and Least Cost Combination of inputs – Expansion Path – Effect of input price changes on the least cost combination.

UNIT IV: Product – Product Relationship

- Product – Product relationship: Meaning – Production Possibility Curve – Marginal Rate of Product Transformation – Enterprise relationship: Joint Products, Complementary, Supplementary and Competitive Products – Isorevenue line – Optimum Combination of Products – Principle of Equi–Marginal Returns – Principle of Opportunity Cost and Minimum Loss Principle.

UNIT V: Farm Planning and Budgeting

- Farm Planning: Importance – Characteristics of good Farm Plan – Farm planning procedure
- Budgeting: Definition and Types: Partial budgeting, Enterprise budgeting, Complete budgeting and Cash flow budgeting – Limitations of budgeting – Linear Programming: Assumptions – Linear Programming Model: Definition, Graphical solution, Advantages and Limitations – Risk and Uncertainty: Definition – Types of Risk and Uncertainty – Safeguards against Risk and Uncertainty.

INTRODUCTION TO PRODUCTION ECONOMICS AND FARM MANAGEMENT PRACTICAL

Computation of depreciation cost of farm assets. Determination of most profitable level of inputs use in a farm production process. Application of equi-marginal returns/opportunity cost principle in allocation of farm resources. Determination of least cost combination of inputs. Selection of most profitable enterprise combination. Farm holding survey. Application of cost principles including CACP concepts in the estimation of cost of crop and livestock enterprises. Farm business analysis, Preparation of farm plan and budget, farm records and accounts and profit & loss accounts. Collection and analysis of data on various resources in India. Seminar on selected topics.

References

1. Johl, S.S. and Kapoor, T.R. (1973), Fundamentals of Farm Business Management, Kalyani Publishers, Ludhiana.
2. Sankhayan, P.L. (1988), Introduction to the Economics of Agricultural Production, Prentice Hall of India Private Limited, New Delhi-110 001.
3. Raju, V.T. and Rao, D.V.S. (1990), Economics of Farm Production and Management, Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi-110 001.
4. Dhondyal, S.P. (1985), Farm Management, Friends Publication Meerut (India).
5. Kahlon, A.S. and Karam Singh (1992), Economics of Farm Management, Allied Publishers, New Delhi. 6. Doll, John P. and Orazem. F. (1984), Production Economics: Theory with Application, John Wiley and Sons, New York.

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
III Year Semester – V
INTRODUCTION TO PRODUCTION ECONOMICS AND FARM MANAGEMENT
MODEL QUESTION PAPER

Time: 3 Hours

Maximum: 75 Marks

SECTION – A

Answer any **FIVE** questions. Each question carries equal marks. (5*5 = 25)

1. Define farm management? Explain it's scope.
2. What is farm plan? What are the key features of good farm plan.
3. Write down the advantages and disadvantages of diversified farming.
4. Differentiate between farm budgeting and linear programming.
5. What is production economics and list out it's objectives.
6. Differentiate law of variable proportions and returns to scale.
7. What is isoquant? List out it's characteristics.
8. What are the basic production problems?

SECTION – B

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

1. a) List out the economic principles applied in farm management. Explain in detail law of variable proportions.
(OR)
b) Elaborate systems of farming in detail
2. a) Explain law of returns with the help of graphs and tables.
(OR)
b) i) What is risk and uncertainty. Explain the sources of risk and uncertainty.
ii) What are methods reducing the risk and uncertainty.
3. a) Explain the key features of three stages of production function.
(OR)
b) Explain the least cost combination of inputs by graphical, algebraic and arithmetic methods.
4. a) Explain and draw different types of product-product relationships.
(OR)
b) What is farm planning and budgeting. Explain the basic steps in farm planning and budgeting.
5. a) i) Production possibility curve
ii) Ridge lines
(OR)
b) Determine optimum combination of products in algebraic, graphic and tabular methods.

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
III Year Semester – V
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 :

- ErachBarucha (2004) Text book of Environmental Studies for Undergraduate courses (Prepared for University Grants Commission) Universities Press.
- PurnimaSmarath (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. JohnWiley & 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 ofConservation Biology. Sunderland: Sinauer Associates

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2020-21 Admitted Batch
III Year - Semester VI

Long term semester internship/Apprenticeship with 12 credits.
Student is eligible for Exit option-3 with the award of Degree.

Crop Production (Field work)
Crop Protection (Field work)
Agricultural Economics (Project Work)
Rural Extension (Project Work)
Agricultural Entrepreneurship (Project Work)

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
III Year - Semester VI
CROP PRODUCTION

- Raising Field crops- Participation and documentation of each and every agronomic practices related to the respective crop grown from Land preparation to Harvest and collection of Biometric data at all important stages of the crop.
- Record & Viva Voce- Record writing for the respective crop grown mentioning all cultivation practices followed from Land preparation to Harvest and Viva Voce.
- Participation: 50 Marks
- Record & Viva Voce: 50 Marks

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
III Year - Semester VI
CROP PROTECTION

- Management of Insect pests and Diseases- Participation and documentation of each and every Plant Protection activity related to the respective crop grown from Land preparation to Harvest and collection of Insect or Disease damage Herbarium or Samples.
- Record & Viva Voce- Record writing for the respective crop grown mentioning all Plant Protection activity followed from Land preparation to Harvest and Viva Voce.
- Participation: 50 Marks
- Record, Herbarium/Specimen & Viva Voce: 50 Marks

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
III Year - Semester VI
AGRICULTURAL ECONOMICS

- Cost of Cultivation- Collection and documentation of the costs incurred in each and every Cultivation practice done in the respective crop grown from Land preparation to Harvest.
- Visit to a Rural Cooperative Bank or Society and learning about their Operational Procedures and Documentation of the visit.
- Record & Viva Voce- Record writing for the respective crop grown mentioning the total cost of cultivation from Land preparation to Harvest and Viva Voce.
- Participation: 50 Marks
- Record & Viva Voce: 50 Marks

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
III Year - Semester VI
RURAL EXTENSION

- Visit to a village and conducting Filed visits and Farmer meetings.
- Visit to an Agricultural enterprise or processing unit, learning the operational procedures and Documentation of the visit.
- Record & Viva Voce- Record writing for the activities like Field visit, Farmer meetings and Agricultural enterprise or processing unit and Viva Voce.
- Participation: 50 Marks
- Record & Viva Voce: 50 Marks

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
III Year - Semester VI
AGRICULTURAL ENTERPRENUERSHIP

- Participation in An Agricultural entrepreneurship activity and gaining hands on experience on any one Agricultural processing or input manufacturing or value addition process and income generation from the activity throughout the semester.
- Participation in Entrepreneurship activity: 50 Marks

Project Thesis and Viva Voce: 50 Marks

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
IV Year – Semester VII

1.	Agriculture microbiology	Major subject	3+1=4
2.	Insect ecology and integrated pest management	Major subject	3+1=4
3.	Farm power and machinery	Major subject	3+1=4
4.	Post-harvest management and value addition of fruits and Vegetables	Skill enhancement course	3+1=4
5.	Farming systems and sustainable agriculture	Skill enhancement course	3+1=4
6.		Open online transdisciplinary course	2+0=2
7.		Indian knowledge system-Audit course	-
TOTAL			17+5=22

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
IV Year – Semester VII
AGRICULTURAL MICROBIOLOGY
(CREDITS 3+1=4)

UNIT I

Protection Against Infection, Applied Areas of Microbiology, Bacterial Cell Structure, Prokaryotic and Eukaryotic Cells- Differences, Morphological Types Of Bacteria, External Structures, Cell Wall Composition, Differences In The Cell Wall Of Gram Positive And Gram Negative Eubacteria

UNIT II

Structures Internal to Cell Wall, Bacterial Growth, Cell Division and Reproduction in Bacteria, Heterotrophy, Respiration, Glycolysis, Ed Pathway, Pentose Phosphate Pathway, TCA Cycle, Electron Transport Chain, Glyoxylate Cycle, Anaerobic Respiration

UNIT III

Fermentation, Different Types of Fermentation, Chemoautotrophy- Importance, Phototrophy, Photosynthetic Light Reactions -Cyclic and Non-Cyclic Photo Phosphorylation, Bacteriophages, Types of Bacteriophages, Lytic and Lysogenic Cycles, Bacterial Genetics, Mutation, Types of Mutations

UNIT IV

Genetic Recombination, Bacterial Transformation in Pneumococcus, Genetic Recombination by Conjugation, Transduction In Salmonella, Soil – Microbiology, Important Groups Of Microbes And Their Role In Fertility Of Soil And Plant Growth

UNIT V

Carbon Cycle, Nitrogen Cycle, Biological Nitrogen Fixing Systems and Examples, Water Microbiology, Microbiological Examination of Water, Food Microbiology, Microbial Spoilage of Foods, Food Preservation, Industrial Microbiology, Beneficial Microorganisms in AGRICULTURE (Honours), Microbial Insecticides, Microbial Biocontrol, Biodegradation

AGRICULTURAL MICROBIOLOGY (PRACTICAL)

- 1.Introduction to microbiology laboratory and its equipments
- 2.Microscope- parts, principles of microscopy, resolving power and numerical aperture
- 3.Methods of sterilization
- 4.Nutritional media and their preparations
- 5.Enumeration of microbial population in soil- bacteria, fungi, actinomycetes
- 6.Methods of isolation and purification of microbial cultures.
- 7.Isolation of Rhizobium from legume root nodule
- 8.Isolation of Azotobacter from soil
- 9.Isolation of Azospirillum from roots
- 10.Staining and microscopic examination of microbes.

REFERENCES:

- 1.Essentials of Agricultural Microbiology;Yogranjan, Pranay Kumar
- 2.Agricultural Microbiology; G.Ranga Swamy, D.J.Bhagya Raj
- 3.Agricultural Microbiology; N.S.Subba Rao
- 4.*Soil Microbiology*; N.S. Subbarao

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
IV Year – Semester VII
AGRICULTURAL MICROBIOLOGY
MODEL QUESTION PAPER

SECTION - A

Answer any **FIVE** questions. Each question carries equal marks.

(5*5=25)

1. Differentiate between eukaryotic and prokaryotic cells.
2. Explain different morphological types of bacteria?
3. Write differences between gram negative and gram-positive bacteria.
4. Write a brief note on cell division and reproduction in bacteria.
5. Pentose phosphate pathway.
6. Explain anaerobic respiration.
7. Explain types of mutations
8. What are bacteriophages? write the general characters of bacteriophages

SECTION - B

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

(5*10=50)

1. a) Explain the typical bacterial structures and functions of bacterial cells.

(OR)

b) Explain glycolysis.

2. a) Explain TCA cycle and electron transport chain in bacteria.

(OR)

b) Write in detail about nitrogen cycle.

3. a) Write a short note on fermentation and explain different types of fermentation

(OR)

b) Explain carbon cycle

4. a) Write an essay on food preservation.

(OR)

b) Write about beneficial microorganisms in AGRICULTURE (Honours).

5. a) What is microbial bio control? Explain mechanisms of biocontrol. State the advantages and disadvantages.

(OR)

b) Write in detail about applied areas of microbiology.

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
IV Year – Semester VII
INSECT ECOLOGY AND INTEGRATED PEST MANAGEMENT
(CREDITS 3+1=4)

UNIT I

Ecology – introduction - importance of insect ecological studies in integrated pest management (IPM) - environment and its components - Abiotic factors - temperature-its effect on the development, Moisture- adaptation of insects to conserve moisture - rainfall - its effect on emergence, movement and oviposition of insects. Light Air currents - effect on dispersal of insects – edaphic factors – water currents. Biotic factors – food - classification of insects according to nutritional requirements - other organisms - inter and intra specific associations - beneficial and harmful associations of parasitoids. Concept of balance of life – biotic potential and environmental resistance. Pest surveillance –pest forecasting - Different categories of pests – regular, occasional, seasonal, persistent, sporadic, epidemic and endemic pests with examples.

UNIT II

IPM – introduction, principles of IPM – tools or components of IPM – practices, scope and limitations of IPM. Host-plant resistance- principles of host plant resistance Cultural control- normal cultural practices which incidentally control the pests with examples; Mechanical control- different mechanical methods of pest control with examples. Physical control – use of inert carriers against stored product insects - steam sterilization – solarization - solar radiation - light traps - flame throwers etc.; Legislative measures - importance of quarantine

UNIT III

Biological control - types of biological control - Kinds of parasitism - Predators – predatism – qualities of insect predator – differences between predator and parasite- Microbial control - Bacteria, viruses, fungi, nematodes and protozoa - scavengers - their importance- chemical control - importance and ideal properties of insecticide - classification of insecticides - toxicity evaluation of insecticides. Formulations of insecticides -Inorganic insecticides - arsenic Compounds - Plant derived insecticides - source – properties and uses. Synthetic organic insecticides – chlorinated hydrocarbons

UNIT IV

Rodenticides – zinc phosphide, aluminum phosphide, bromodilone; Acaricides- sulphur, dicofol, tetradifon and propargite; Fumigants - aluminum phosphide Application techniques of spray fluids - high volume, low and ultra low volume sprays - phytotoxic effects of insecticides - advantages and limitations of chemical control – safe use of pesticides.

UNIT V

Mites- Importance - morphology and biology of mites - Classification - host range Rodents- Important major rodent species - nature of damage-management- other non-insect pests - important bird, and animal pest damage to crops- management strategies- House hold and livestock insect pests.

INSECT ECOLOGY AND INTEGRATED PEST MANAGEMENT(PRACTICAL)

1. Study of distribution patterns of insects in crop ecosystems
2. Sampling techniques for the estimation of insect population and damage
3. Pest surveillance through light traps, pheromone traps and forecasting of pest incidence
4. Acquaintance of mass multiplication techniques of important predators – Cheilomenes, Chrysoperla and Cryptolaemus
5. Acquaintance of mass multiplication techniques of important parasitoids – egg, larval and pupal parasitoids
6. Acquaintance of mass multiplication techniques of important entamopathogenic fungi
7. Identification of different types of nematodes
8. Identification of different mite species
9. Identification of different non-insect pests-birds, rodents, crabs and snails
10. Identification of different non-insect pests-house hold and veterinary insect pests

REFERENCES:

- 1.Dhaliwal GS and Ramesh Arora 2001. Integrated pest management: Concepts and approaches, Kalyani Publishers Ludhiana
- 2.Gautam,R.D 2008 Biological Pest Suppression. Westville publishing House New Delhi
- 3.Yazdani,S.S and Agarwal,M.L.1979. Elements of Insect Ecology. Narosa Publishing House,New Delhi
- 4.Upadhyaya K.P and Kusum Dwivedi.1997. A Text Book of Plant Nematology Aman Publishing House, Meerut

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
IV Year – Semester VII
INSECT ECOLOGY AND
INTEGRATED PEST MANAGEMENT
MODEL QUESTION PAPER

SECTION - A

Answer any **FIVE** questions. Each question carries equal marks.

(5*5=25)

1. Pest surveillance and pest forecasting
2. Explain different categories of pests?
3. Write a short note on host plant resistance.
4. Explain legislative measures and write the importance of quarantine.
5. Classification of insecticides.
6. Application techniques of spray fluids and write the Phytotoxic effects of insecticides.
7. State the advantages and disadvantages of chemical control
8. Difference between predator and parasite.

SECTION - B

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

(5*10=50)

1. a) I. What is ecology and its importance in IPM.
II. Explain the effects environmental factors on insects
(OR)
b) Explain concepts and principles of IPM.
2. a) Write about cultural and mechanical control of insects
(OR)
b) Write about physical control of insects
3. a) Write an essay on biological control of insects
(OR)
b) What is chemical control and state the importance and ideal properties of insecticides
4. a) Write in detail about formulations of insecticides
(OR)
b) Important pests of domestic and veterinary importance and their management.
5. a) IPM of rodents.
(OR)
b) Write about plant derived insecticides.

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
IV Year – Semester VII
FARM POWER AND MACHINERY
(CREDITS 3+1=4)

UNIT I:

- Components of IC engine. Valve working and valve timing diagram. Tillage- Objectives- Classification- Primary Tillage and Secondary tillage implements Types of tillage

UNIT II:

- Primary tillage implements- Mould board Plough, Disc Plough, Chisel Plough, Subsoiler, Components and Functions, Types, Advantages and Disadvantages.

UNIT III:

- Secondary Tillage implement– Harrows- Types- Animal drawn harrow- Tractor drawn harrow.

UNIT IV:

- Cultivators- Types Land Forming Equipment- Wetland Equipment –Puddlers and Green Manure Trampers - cage wheels.

UNIT V:

- Planting and fertilizing equipments- Methods of sowing- study of animal drawn seed cum ferti drill- study of tractor drawn seed cum ferti drill. Planters- potato, sugarcane planter, study of inter cultivation equipments- weeder.

FARM POWER AND MACHINERY (PRACTICALS)

Study of different components of I.C. engine - To study air cleaning and cooling system of engine - Familiarization with clutch – Transmission - Differential and final drive of a tractor - Familiarization with operation of power tiller - Familiarization with different types of primary and secondary tillage implements - Mould plough - Disc plough and disc harrow - Familiarization with seedcum-fertilizer drills their seed metering mechanism and calibration - Planters and transplanter - Familiarization with different types of sprayers and dusters - Familiarization with different inter-cultivation equipment - Familiarization with harvesting and threshing machinery.

TEXT BOOKS:

JagdishwarSahay (1977), Elements of Agricultural Engineering, Standard Publications, New Delhi.

Pakirappa and Naresh V (2014), Energy sources and power plant engineering, radiant Publishing House, Hyderabad.

Michel A.M, and Ojha T.P, Principles of Agricultural Engineering, Vol.I, Jain Brothers, New Del

ANDHRA UNIVERSITY
B. VOCATIONAL COURSE
AGRICULTURE (Honours)
2023-24 Admitted Batch
IV Year Semester- VII
FARM POWER AND MACHINERY

MODEL QUESTION PAPER

SECTION - A

Answer any **FIVE** questions. Each question carries equal marks.

(5*5=25)

1. Write about disc plough and its salient features.
2. Write about the Valve working and draw Valve timing Diagram.
3. What is Tillage? Write about its Objectives and types.
4. Write about Chisel plough and its salient features.
5. Write about the structure of Sub soil plough with Diagram.
6. What is Puddler and write about Open blade type.
7. Write about the structure of Blade harrow with Diagram.
8. Write about Paddy weeder with Diagram

SECTION - B

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

(5*10=50)

1. a) Define tillage and write an essay on different tillage implements.
(OR)
b) Give a brief account on methods of sowing.
2. a) Write about the components of Internal combustion engine with diagrams.
(OR)
b) What is Four stroke engine and write about its working with Diagrams.
3. a) What are the components of Mould Board plough? Write about Share and its types
(OR)
b) What are the components of Disc Plough and Write about types of Disc plough
4. a) What are the components of Tractor drawn Disc harrow and write about its penetration.
(OR)
b) Write about the types of cultivators with Diagrams.
5. a) What is a Seed drill, write about its components and Elaborate the Fluted Feed seed metering mechanism.
(OR)
b) Write about the types of Potato planters and breif about Sugar cane Planter.

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
IV Year – Semester VII
(CREDITS 3+1=4)

POST HARVEST MANAGEMENT AND VALUE ADDITION OF FRUITS AND VEGETABLES

UNIT I

The Importance of post-harvest technology of horticultural crops, Quality of post-harvest product, Pre harvest factors post-harvest factors affecting quality on post-harvest life of fruits and vegetables – factors responsible for deterioration of harvested fruits and vegetables.

UNIT II

Chemicals used in Ripening, importance of precooling, Methods for Precooling Produce pre storage treatments, low temperature storage, controlled atmosphere storage, hypobaric storage, irradiation and low-cost storage structures

UNIT III

Packaging Points Various types of packaging materials- Palletization- packaging technology for export. Fabrication of type of containers, cushioning material, vacuum packaging, poly shrink packaging, specific packaging for export of mango, banana, grapes, etc.

UNIT IV

Principles Of Food Preservation by Heat, Preservation by Low Temperature, Preservation by Chemicals, Preservation by fermentation. Precautions For Hygienic Conditions of The Unit, Sanitary Requirements of a Factory of Fruit Products, Preservation Through Canning, Bottling and Freezing- Methods of freezing, Preservation by Dehydration /Drying

UNIT V

Preparation Of Jams, Jellies, Marmalades, Preserves, Chutneys, Pickles, Ketchup, Sauce, Puree, Syrups, Juices, Squashes and Cordials

POST HARVEST MANAGEMENT OF FRUITS AND VEGETABLES (PRACTICAL)

1. Application of different types of packaging containers for shelf-life extension.
2. Effect of temperature on shelf life and quality of produce
3. Demonstration of chilling and freezing injury in fruits and vegetables
4. Extraction and preservation of pulps and juices
5. Preparation of Jam
6. Preparation of Jelly
7. Preparation of RTS and Nectar
8. Preparation of Squash and Syrup
9. Preparation of osmotically dried products
10. Preparation of fruit bar and candy

REFERENCES

1. Sudheer, K.P. and V.Indira. 2007. Post harvest technology of horticultural crops. New India Publishing Agency, Nw Delhi.
2. Verma, L.R. and V.K. Joshi. 2000. Post harvest technology of fruits and vegetables – Handling, Processing, Fermentation and Waste Management. Indus Publishing Company. New Delhi.
3. Chadha, K.L. 2009. Handbook of Horticulture. IARI Publications, New Delhi.
4. Thompson, A.K. 1996. Post harvest technology of fruits and vegetables. Blackwell Science Ltd. London.

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POST HARVEST MANAGEMENT AND VALUE ADDITION OF FRUITS AND
VEGETABLES
MODEL QUESTION PAPER

SECTION - A

Answer any **FIVE** questions. Each question carries equal marks.

(5*5=25)

1. Importance of post-harvest technology of horticultural crops
2. Write about chemicals used in ripening
3. Write the importance of precooling.
4. Write about atmospheric packaging.
5. Vacuum packaging.
6. Write about the principles of food preservation by heat.
7. What are the sanitary requirements of factory of fruit products.
8. Write about preservation by bottling.

SECTION - B

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

(5*10=50)

1. a) What are the post-harvest and preharvest factors affecting quality post-harvest life of fruits and vegetables

(OR)

- b) What are the factors responsible for the deterioration of the harvested fruits and vegetables

2. a) Write about different methods for pre cooling procedure.

(OR)

- b) Types of packaging material.

3. a) Write about principles and process of canning.

(OR)

- b) What are the methods of freezing.

4. a) Preparation of jellies and marmalade.

(OR)

- b) Preparation of juices.

5. a) Write the process of drying of fruits and state the advantages of dehydrated foods.

(OR)

- b) What are the methods of drying.

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2023-24 Admitted Batch
IV Year – Semester VII
FARMING SYSTEMS AND SUSTAINABLE AGRICULTURE
(CREDITS 3+1=4)

UNIT I

Sustainable agriculture – introduction – adverse effects of modern agriculture – definition – concept – goals – elements and current status of sustainable agriculture in India. Factors effecting ecological balance and sustainability of agricultural resources – introduction – land / soil related problems – soil degradation, deforestation, accelerated soil erosion.

UNIT II

Rise in water table – water logging – salinization and alkalization- control and reclamation measures Groundwater development scenario – over exploitation problems and safe yield concept – artificial recharge methods.

UNIT III

Environmental pollution – Introduction – greenhouse effect and potential effects on agriculture – depletion of ozone layer, methane emissions from rice fields and mitigation options- Fertilizers as a source of pollution and control measures – introduction – nitrate pollution in soil and ground water and eutrophication – management factors to reduce fertilizer pollution- Pesticides as source of pollution and control measures – bio pesticides.

UNIT IV

Impact on Low External Input Agriculture (ILEIA) and Low External Inputs for Sustainable Agriculture (LEISA) – vegetative cover.

Farming systems – system and systems approach – farming system – determinants of farming system – cropping systems and related terminology

UNIT V

Study of allied enterprises – significance of integrating crop and livestock – dairying and sheep and goat rearing – breeds – housing – feed and fodder requirements – biogas plant poultry farming – breeds – housing – feed and fodder requirements – apiculture – species and management- sericulture – moriculture and silkworm rearing – agro-forestry systems suitable for dryland farming-

FARMING SYSTEMS AND SUSTAINABLE AGRICULTURE (PRACTICAL)

1. Preparation of cropping scheme to suit different irrigated and garden land situations
2. Preparation of farming systems to suit to dryland situation
3. Compost making
4. Vermicompost
5. Preparation of enriched farmyard manure

6. Recycling of urban waste
7. Use of bio-pesticides
8. Preparation of project proposals for land development
9. Management of problematic soils
10. Management practices to prevent environmental deterioration for sustainable agriculture

REFERENCES:

1. Arun, K. Sharma. 2006. A Hand Book of Organic Farming. Agrobios (India), Jodhpur. Dahama, A.K. 2007.
2. Organic Farming for Sustainable Agriculture. Agrobios (India), Jodhpur.
3. Dalela, R.C. and Mani, U.H. 1985. Assessment of Environmental Pollution. Academy of Environmental Biology, Muzaffarnagar.
4. Purohit, S.S. 2006. Trends in Organic Farming in India. Agrobios (India), Jodhpur.

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IV Year – Semester VII
FARMING SYSTEMS AND SUSTAINABLE AGRICULTURE
MODEL QUESTION PAPER

SECTION - A

Answer any **FIVE** questions. Each question carries equal marks. (5*5=25)

1. What are factors affecting the ecological balance and sustainable Agri-Resources
2. what are alkaline and soil soils and write about their reclamation
3. Write a short note on artificial recharge of groundwater
4. What are the potential effects of global warming?
5. Write a short note on methane emission of rice and how to mitigate?
6. What are the characters and advantages of biopesticides.
7. Alley cropping.
8. What are the characteristics of farming system?

SECTION - B

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

1. a) Explain the goals and elements of sustainable agriculture.

(OR)

- b) Explain multiple cropping and mixed cropping systems

2. a) Explain the soil related problems?

(OR)

- b) What is eutrophication and explain effects and measures to reduce artificial eutrophication?

3. a) Explain the sustainable energy management in high input agriculture.

(OR)

- b) Write in detail about bee keeping

4. a) What are the principles and objectives of farming system?

(OR)

- b) Explain different Agro forestry systems?

5. a) Write a short note on silkworm rearing and explain significance of integrated farming systems

(OR)

- b) Write an essay on biogas plant

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OPEN ONLINE TRANSDICIPILINARY
(CREDITS 2+0=2)

ANDHRA UNIVERSITY
B. Vocational course
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IV Year – Semester VII
INDIAN KNOWLEDGE SYSTEM-AUDIT COURSE

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
IV Year – Semester VIII

1.	Principles of plant biotechnology	Major subject	3+1=4
2.	Breeding of field crops	Major subject	3+1=4
3.	Fundamentals of rural sociology and extension education	Major subject	3+1=4
4.	Floriculture	Skill enhancement course	3+1=4
5.	Entrepreneurship development	Skill enhancement course	3+1=4
6.		Open online transdisciplinary course	2+0=2
7.		Indian knowledge system-Audit course	-
TOTAL			17+5=22

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE (Honours)
2023-24 Admitted Batch
IV Year – Semester VIII
PRINCIPLES OF PLANT BIOTECHNOLOGY
(CREDITS 3+1=4)

UNIT I

Biotechnology – definitions – major concepts and importance – biotechnology in India- History of plant tissue culture and plant genetic engineering and its terminology - Plant cell and tissue culture techniques – applications of plant tissue culture in crop improvement - Types of media – types of cultures.

UNIT II

Totipotency and morphogenesis – growth and differentiation in cultures – Micropropagation – meristem culture – procedure – Somaclonal variation – types – origin – applications – advantages – limitations – achievements - Embryo culture – purpose – methods of embryo culture – procedure – applications – achievements.

UNIT III

Somatic embryogenesis – stages of development – factors affecting somatic embryogenesis – applications – limitations - In vitro pollination and fertilization – somatic hybridization – procedure – isolation, culture, fusion of protoplasts, selection and culture of somatic hybrid cells and regeneration of hybrid plants – products of somatic hybridization – symmetric hybrids, asymmetric hybrids and cybrids – advantages and limitations of somatic hybridization.

UNIT IV

Genetic engineering – introduction - Method of cloning DNA in bacteria – Restriction enzymes – Vectors for gene transfer – properties of a good vector – cloning and expression vectors - Isolation of DNA fragments – Polymerase Chain Reaction (PCR) – comparison of PCR and gene cloning.

UNIT V

Genetic engineering for resistance to diseases caused by virus, fungi and bacteria.

PRINCIPLES OF PLANT BIOTECHNOLOGY (PRACTICALS):

1. Requirements for Plant Tissue Culture Laboratory
2. Techniques in Plant Tissue Culture
3. Media components and preparations
4. Sterilization techniques and Inoculation of various explants
5. Aseptic manipulation of various explants
6. Callus induction and Plant Regeneration
7. Micro propagation of important crops and hardening / acclimatization of regenerated plants
8. Anther, Embryo and Endosperm culture
9. Somatic embryogenesis and synthetic seed production
10. Isolation of protoplast
11. Culturing of protoplast
12. Demonstration of Isolation of DNA

REFERENCES:

1. Bilgrami, K.S. and Pandey, A.K. 1992. Introduction to Biotechnology. CBS Pub., New Delhi.
- Chahal, G.S. and Gosal, S.S. 2002. Principles and Procedures of Plant Breeding –
2. Biotechnological and Conventional Approaches. Narosa Publishing House, New Delhi.
3. Chawla, H.S. 2005. Introduction to Plant Biotechnology. Oxford and IBH Publishing Co., New Delhi.
4. Gupta, P.K. 1994 Elements of Biotechnology. Rastogi and Co., Educational Publishers, Meerut.
5. Jha, T.B. and Ghosh, B. 2005. Plant Tissue Culture. University Press, Hyderabad.

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IV Year – Semester VIII
PRINCIPLES OF PLANT BIOTECHNOLOGY
MODEL QUESTION PAPER

SECTION - A

Answer any **FIVE** questions. Each question carries equal marks. (5*5=25)

1. What are the major concepts and importance of biotechnology.
2. Explain types of media and types of cultures.
3. What is totipotency and morphogenesis.
4. Explain polymerase chain reaction.
5. Explain the properties of a good vector.
6. Write a short note on invitro pollination and fertilization.
7. Isolation of DNA fragments.
8. Write a short note on gene cloning.

SECTION - B

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

1. a) Write in detail about soma clonal variation.

(OR)

b) What is somatic embryogenesis and explain the stages of development and factors affecting it.

2. a) Explain the method of cloning DNA in bacteria and write a short note on restriction enzymes and vectors for gene transfer.

(OR)

b) Write an essay on transgenic plants, its applications in crop improvement and limitations.

3. a) Genetic engineering for resistance to diseases caused by virus, fungi and bacteria.

(OR)

b) Explain in detail about somatic hybridization.

4. a) Tissue culture techniques and its applications in crop improvement.

(OR)

b) What are symmetric hybrids, asymmetric hybrids and cybrids. State the advantages and limitations of somatic hybridization.

5. a) Explain embryo culture technique.

(OR)

b) Write an essay on micropropagation.

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B. VOCATIONAL COURSE
AGRICULTURE (Honours)
2023-24 Admitted Batch
IV Year Semester- VIII
BREEDING OF FIELD CROPS
(CREDITS 3+1=4)

UNIT–I: Cereals

- Rice, Wheat, Maize, Sorghum Place of origin – putative parents – related wild species – classification – objectives of breeding- methods of breeding – quantity – quality – stress – conventional – innovative – heterosis breeding – distant hybridization and important varieties in following crops.

UNIT – II: Millets

- Pearl millet, Finger millet Place of origin – putative parents – related wild species – classification – objectives of breeding- methods of breeding – quantity – quality – stress – conventional – innovative – heterosis breeding – distant hybridization and important varieties in following crops.

UNIT–III: Pulses

- Red gram, Bengal gram, Green gram, Black gram, Soybean Place of origin – putative parents – related wild species – classification – objectives of breeding- methods of breeding – quantity – quality – stress – conventional – innovative – heterosis breeding – distant hybridization and important varieties in following crops.

UNIT – IV: Oilseeds

- Groundnut, Sesame, Mustard, Sunflower and Safflower, Coconut Place of origin – putative parents – related wild species – classification – objectives of breeding- methods of breeding – quantity – quality – stress – conventional – innovative – heterosis breeding – distant hybridization and important varieties in following crops.

UNIT–V: Fibres and Sugars

- Cotton, Jute, Mesta, Sugarcane Place of origin – putative parents – related wild species – classification – objectives of breeding- methods of breeding – quantity – quality – stress – conventional – innovative – heterosis breeding – distant hybridization and important varieties in following crops.

BREEDING OF FIELD CROPS (PRACTICAL)

Observation on floral biology – anthesis and pollination – selfing and crossing techniques – observation on wild species – maintenance of crossing ledger – pedigree record – in following crops.

1. Rice, Wheat
2. Maize, Sorghum
3. Pearl Millet, Finger Millet
4. Red gram Bengal Gram, Green Gram, Black Gram, Soybean
5. Groundnut, Sesame, Mustard.
6. Sunflower, Safflower.
7. Coconut
8. Cotton, Jute and Mesta
9. Sugarcane

Reference

6. Principles of Plant Breeding (1st & 2nd Edition) by RW Allard,
7. Breeding Field Crops by JM Poehlman,
8. Plant Breeding: Principles & Practices by JR Sharma,
9. Genetics by Strickberger, and
10. An introduction to genetic analysis by Suzuki et Al.

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2023-24 Admitted Batch
IV Year Semester- VIII
BREEDING OF FIELD CROPS
MODEL QUESTION PAPER
SECTION – A

Time: 3 Hours

Maximum: 75 Marks

Answer any **FIVE** questions. Each question carries equal marks. (5*5=25)

1. Draw the flowcharts for origin of Diploid, Tetraploid and Hexaploid Wheat.
2. Write about the latest classification of Sorghum given by Harlan and De Wet.
3. Write about the 3 basic type of crosses made in Hybridization of Sugar cane?
4. What are the main reasons for Low yields of Pulses compared to Cereals.
5. Write about the Progenitors and desirable plant type in Chick pea.
6. Write about the types of cultivated species in Cotton.
7. Write about the classification of Cultivated Species of Rice?
8. Write about Breeding techniques of Finger millet.

SECTION - B

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

1. a) Write about the breeding techniques for developing Hybrid Rice.

(OR)

b) Elucidate the Objectives of Plant Breeding.

2. a) Write about the Objectives for Breeding of Red Gram.

(OR)

b) Write about the classification of Ground Nut and why it is called as an unpredictable crop.

3. a) Explain Head to row and remnant seed method and Heterosis breeding in Sunflower.

(OR)

b) Write about the Taxonomy of Brassica crops and their economic characters.

4. a) Write elaborately about the Breeding procedures in Cotton.

(OR)

b) Write about the related wild species and improved varieties of red gram.

5. a) Write about the Breeding procedures for disease and abiotic stress resistance in Sugar cane.

(OR)

b) Write about the Breeding objectives of Soybean.

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IV Year – Semester VIII
FUNDAMENTALS OF RURAL SOCIOLOGY AND EXTENSION EDUCATION
(CREDITS 3 + 1 = 4)

UNIT I

Sociology- Meaning, definition Rural Sociology- Meaning, definition, Scope, Importance of Rural sociology in agricultural extension and interrelationship between rural sociology and Agricultural Extension Indian Rural Society- Important characteristics, difference and relationship between rural and urban societies

UNIT II

Social groups- Meaning, definition, classification, Factors Considered In Formation And Organization of Groups, Motivation In Group Formation and Role of Social Groups In Agricultural Extension Social Stratification- Meaning, Definition, Functions, basis for stratification, Forms of social stratification, characteristics and difference between class and caste system Cultural Concepts- Culture, Customs, Folkways, Mores, taboos, Rituals and traditions- meaning, definition, and their role in Agricultural Extension

UNIT III

Social Values and Attitudes- Meaning, Definition, Types and Role of Social values and attitude in Agricultural Extension
Social Institutions- Meaning, Definition, Major institutions in rural society, marriage, family and religion, functions and their role in Agricultural Extension
Social Control- Meaning, Definition, need of social control in Agricultural Extension.
Social Change- Meaning, Definition, Nature of Social Change, Dimensions of Social Change, Types and their role in Agricultural Extension.

UNIT IV

Leader- Meaning, Definition, types and their role in Agricultural Extension.
Psychology and Educational psychology- Meaning, Definition, scope and importance of educational psychology in Agricultural Extension.
Behaviour: Cognitive, affective, psychomotor domain 05 Intelligence- Meaning, Definition, types factors affecting intelligence Personality- Meaning, Definition, types factors influencing personality

UNIT V

Teaching- Learning Process-Meaning and Definition of Teaching and learning, learning experience and learning situation, Elements of learning situation and its characteristics, principals of learning and their implication for teaching.
Perception: - Meaning, definition, role of perception in agricultural extension
Motivation: - Meaning, definition, role of motivation in agricultural extension

FUNDAMENTALS OF RURAL SOCIOLOGY AND EXTENSION EDUCATION (PRACTICALS):

1. Visit to a village to study the characteristics of rural society
2. Visit to village institutions - school or cooperative society or gram Panchayat
3. Visit to social organizations - youth club or milk cooperative centre or Water Users Association.
4. Administering psychological tests by students to assess level of intelligence of human beings.
5. Administering psychological tests by students to assess the personality types of human beings.
6. Conducting role play technique by the students to exhibit different leadership styles.
7. Simulated exercises to exercise positive and negative emotions of farmers in village.
8. Simulated exercises to reveal the positive and negative emotions of the students in real life situation.
9. Simulated exercises on identification of positive and negative emotions and emotionally balanced behaviour.
10. Nature of learners' behaviour in motivation.

REFERENCES:

1. Adivi Reddy, A. 2001. Extension Education. Sri Lakshmi Press, Bapatla.
2. Chitamber, J.B. 1997. Introductory Rural Sociology. Wiley Eastern Limited, New Delhi.
3. Daivadeenam, P. 2002. Educational Psychology in AGRICULTURE (Honours). Agrotech Publishing Academy, Udaipur.
4. Mangal, S.K. 2000. Educational Psychology. Prakash Brothers, Ludhiana.
5. Ray, G.L. 2006. Extension Communication and Management. Naya Prakashan, Kolkata.

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IV Year – Semester VIII
FUNDAMENTALS OF RURAL SOCIOLOGY AND EXTENSION EDUCATION
MODEL QUESTION PAPER

SECTION - A

Answer any **FIVE** questions. Each question carries equal marks. (5*5=25)

1. Importance of rural sociology in India. Scope of rural sociology in agricultural extension
2. Write a short note on social group and state characteristics of social group.
3. Difference between primary and social group.
4. Difference between mores and folkways.
5. Write short note on taboos and rituals.
6. Classification of family.
7. What is the role of social control in society.
8. What is the role of leaders in agricultural extension

SECTION - B

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

1. a) Difference between rural and urban societies.
(OR)
b) Write about functions, characteristics and structure of culture.
2. a) Write about characteristics of Indian rural family
(OR)
b) What are the dimensions of social change and explain the factors effecting social change
3. a) Explain the importance and role of education psychology in agricultural extension.
(OR)
b) What are the factors effecting intelligence and importance of intelligence in agricultural extension.
4. a) Difference between extrovert and introvert personality
(OR)
b) Classification of leaders.
5. a) What are different principles of learning
(OR)
b) Factors affecting personality and Role of personality in agricultural extension.

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AGRICULTURE (Honours)
2023-24 Admitted Batch
IV Year – Semester VIII
FLORICULTURE
(CREDITS 3+1=4)

UNIT I

Floriculture – definition – History of floriculture in India - Scope and importance of floriculture crops; Industrial importance of Ornamental plants & Commercial flowers in India and abroad - Role of ornamentals in pollution control - Classification of flower crops.

UNIT II

Ornamental gardening - features of ornamental gardening - Planning of ornamental gardens – principles involved in layout of gardens - Types and styles of ornamental gardens.

UNIT III

Production technology of flower crops under protected and open cultivation of Rose, Gerbera, Gladiolus, Tuberose.

UNIT IV

Production technology of flower crops under protected and open cultivation of Jasmine, Chrysanthemum, Marigold.

UNIT V

Cut flower production and Post - harvest handling of cut flowers - New generation cut flowers - Dry flower production – A profitable floriculture business.

FLORICULTURE (PRACTICALS)

1. Identification of commercially important flower crops and their varieties.
2. Tools and equipments used in plant propagation techniques
3. Propagation techniques for flower crops production.
4. Training and pruning, drip and fertigation, foliar nutrition.
5. Growth regulator application, pinching, disbudding, staking.
6. Harvesting techniques, postharvest handling of cut flowers.
7. Project preparation for regionally important cut flowers.
8. Visit to commercial cut flower units and case study.

REFERENCES:

- 1.Arora, JS. 2006. Introductory Ornamental Horticultural. Kalyani.
- 2.Bhattacharjee, SK. 2006. Advances in Ornamental Horticulture. Vols. I-VI. Pointer Publ.
- 3.Bose, TK. Maiti RG, Dhua RS & Das P. 1999. Floriculture and Landscaping. Naya prokash.
- 4.Reddy, S. Janakiram, B. Balaji, T. Kulkarni, S & Misra, RL. 2007. High-techFloriculture. 5.Indian Society of ornamental Horticulture, New Delhi.
- 6.Complete book of roses by Bhattacharjee, S. K. & Banerjee, B. K. (2010) published by Aniskar Publisher, Jaipur.

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IV Year – Semester VIII
FLORICULTURE
MODEL QUESTION PAPER

SECTION - A

Answer any **FIVE** questions. Each question carries equal marks.

(5*5=25)

1. What is the scope and importance of floriculture?
2. Write the role of ornamental crops in pollution control
3. Write a short note on press drying of flowers
4. Explain the physiological changes during flower senescence?
5. What are the factors affecting storage life of flowers? What are the conditions and precooling of cut flowers?
6. What is the importance of post-harvest handling of flowers?
7. What are the uses of marigold?
8. Write the importance and classes of gladiolus?

SECTION - B

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

(5*10=50)

1. a) Explain the classification of flowers.

(OR)

b) Write the production technology of rose

2. a) Explain the different methods of storage of cut flowers?

(OR)

b) Write the advantages and uses of dry flowers?

3. a) What are the different embedding materials used for flower drying and their characteristics

(OR)

b) I. Description of commercial cultivars of tuberose

II. Write about lifting, curing and storage of bulbs in tuberose

4. a) Explain the procedure for extraction of jasmine concrete

(OR)

b) What are the propagating materials of gladiolus and explain the harvesting and storage of corms in gladiolus?

5. a) Write in detail about classification of chrysanthemum

(OR)

b) What are the objectives and types of pruning in roses

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IV Year – Semester VIII
ENTREPRENEURSHIP DEVELOPMENT
(CREDITS 3+1=4)

UNIT I

Concept of entrepreneur, entrepreneurship, functions of entrepreneur, Entrepreneurial characteristics, Distinction between an entrepreneur and a manager, Agri-entrepreneurship-concept, need and scope, Assessing overall business environment in Indian economy, globalization, implications of social, political and economic systems on entrepreneurship.

UNIT II

Entrepreneurship development programmes (EDPs) - objectives, phases, problems of EDPs, Criteria for assessment or evaluation of EDPs, Generation, incubation and commercialization of business ideas, Role of entrepreneurship in economic development, Motivation and entrepreneurship development, managing an enterprise, Importance of planning, budgeting, monitoring, evaluation and follow up in running an enterprise.

UNIT III

Researching / managing competition- ways to define possible competitors, competitive information, SWOT analysis-concept, meaning and advantages, Forms of business-contract farming, joint venture and public private partnership.

UNIT IV

An overview of agricultural input industry in India; fertilizer, pesticide, seed and farm machinery industry, Overview of Indian agricultural processing industry, social responsibility and business ethics.

UNIT V

Project- meaning, importance, components & preparation, Supply chain management- meaning, advantages, stages, process, drivers and scope of Agri-supply chain management, Women entrepreneurship-concept, problems and development of women entrepreneurs.

ENTREPRENEURSHIP DEVELOPMENT (PRACTICALS)

1. Communication skills - listening and note taking - simulated exercises.
2. Communication skills - writing skills - simulated exercises.
3. Communication skills - presentation - oral impromptu and public speaking - simulated exercise Communication skills - reading and comprehension - simulated exercises.
4. Visit to a public private enterprise.
5. Visit to. Agri clinics and agribusiness centers.
6. SWOT analysis of selected enterprise.
7. Development of project proposals - idea generation.
8. Development of project proposals - SWOT analysis.
9. Development of project proposals - formulation of project plan.

10. Development of project proposals - formulation of project plan.
11. Presentation of project reports by the students.

REFERENCES:

1. Anils Kumar, S., Poornima, S.C., Mini, K., Abraham and Jayashree, K. 2003. Entrepreneurship Development, New Age International Publishers, New Delhi.
2. Gupta, C.B. 2001. Management. Theory and Practice. Sultan Chand and Sons, New Delhi.
3. Indu Grover. 2008. Handbook on Empowerment and Entrepreneurship. Agrotech Public Academy, Udaipur.
4. Mary Coulter. 2008. Entrepreneurship in Action. Prentice Hall of India Pvt. Ltd., New Delhi.
5. Mohanty, S.K. 2009. Fundamentals of Entrepreneurship. Prentice Hall of India Pvt. Ltd., New Delhi.

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2023-24 Admitted Batch
IV Year – Semester VIII
ENTREPRENEURSHIP DEVELOPMENT
MODEL QUESTION PAPER

SECTION - A

Answer any **FIVE** questions. Each question carries equal marks. (5*5=25)

1. Difference between entrepreneur and manager
2. What is the need of and scope of Agripreneurship?
3. What are the objectives of entrepreneur development program.
4. Explain the process of commercialization?
5. How you will manage an enterprise?
6. What is the purpose and importance of budgeting.
7. Write the merits and problems faced by the farmers in contract farming.
8. Write a short note on Indian fertilizer industry.

SECTION - B

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

1. a) Explain the types of entrepreneurs.

(OR)

- b) What are the functions of entrepreneurs?

2. a) What are the different ways to generate ideas?

(OR)

- b) Explain the characteristics of entrepreneurs?

3. a) Write in detail about SWOT analysis.

(OR)

- b) Explain the characters of food processing industry.

4. a) What are the social responsibilities?

(OR)

- b) What are the problems of women entrepreneurs?

5. a) What is contract farming? Explain the types of contract farming.

(OR)

- b) What are the drivers of supply chain performance write about the scope of Agri supply chain management?

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2023-24 Admitted Batch
IV Year – Semester VIII
OPEN ONLINE TRANSDISCIPLINARY COURSE
(CREDITS 2+0=2)

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B. Vocational course
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IV Year – Semester VIII
INDIAN KNOWLEDGE SYSTEM -AUDIT COURSE