No. LI(1)/U.G. Courses/B. Vocational Agriculture Course/CBCS Syllabus / 2020-21.

Visakhapatnam,
Dt: 31-07-2021.

From: THE REGISTRAR

To

The Principal,
A.M.A.L. College,
Anakapalle.

Sir/Madam,

Sub: Choice Based Credit System (CBCS) Syllabus of (w.e.f. 2020-21)
U.G. Courses – Orders – Issued.

Read: Letter dated: 27-07-2021 received from Principal, A.M.A.L.
College, Anakapalle, enclosed syllabus of B. Vocational
Agriculture Course along with minutes of the meeting of
the Board of Studies.

* * *

I am by direction to inform that all the Principals of the affiliated colleges
to strictly adhere to the APSCHE guidelines for the revised Choice Based Credit
System, syllabus of U.G. Courses B. Vocational Agriculture course (CBCS) placed
in A.U. website w.e.f 2020-21.

Thanking you,

Yours faithfully,

(B.RAMACHANDER)
ASSISTANT REGISTRAR (ACADEMIC)

Copies to:
1. The Dean of Academic Affairs, A.U., VSP.
3. The Dean, CDC, A.U., Vsp.
4. The Dean, Confidential, A.U., Vsp.
5. The Controller of Examinations, A.U., Vsp.
7. The Secretary to V.C., Rector Table, P.A. to Registrar, A.U., Vsp.
8. The Director, Computer Centre, A.U., Vsp.
9. The Secretary to APSCHE.
10. The Chairman, Agriculture Council, A.P.
11. The Registrar, Veterinary Council. A.P.
12. The Secretary to ICAR.
13. O.C. & O.O.F.
PROCEEDINGS OF THE VICE-CHANCELLOR

Sub: Choice Based Credit System (CBCS) Syllabus of (w.e.f. 2020-21) U.G. Courses – Orders – Issued.

Read: Letter dated: 27-07-2021 received from Principal, A.M.A.L. College, Anakapalle, enclosed syllabus of B. Vocational Agriculture Course along with minutes of the meeting of the Board of Studies.

* * *

ORDER:

The Hon’ble Vice-Chancellor has ordered that the ref read above on the revised Choice Based Credit System (CBCS) syllabus of B. Vocational Agriculture course be approved (w.e.f. 2020-21) and be placed in A.U. website.

It is further ordered to place the matter before the ensuing meeting of the Academic Senate for ratification.

(BY ORDER)

[Signature]

(B. RAMACHANDER)
ASSISTANT REGISTRAR (ACADEMIC)

To:
The Dean, Academic Affairs, A.U. Vsp.

Copies to:

1. The Dean of Academic Affairs, A.U., VSP.
3. The Dean, CDC, A.U., Vsp.
4. The Dean, Confidential, A.U., Vsp.
5. The Controller of Examinations, A.U., Vsp.
7. The Secretary to V.C., Rector Table, P.A. to Registrar, A.U., Vsp.
8. The Director, Computer Centre, A.U., Vsp.
9. The Secretary to APSCHE.
10. The Chairman, Agriculture Council, A.P.
11. The Registrar, Veterinary Council, A.P.
12. The Secretary, ICAR.
13. O.C. & O.O.F.
ANDHRA UNIVERSITY
VISAKHAPATNAM

SYLLABUS OF
B. Vocational Course

AGRICULTURE

UGC- NATIONAL SKILLS QUALIFICATIONS FRAMEWORK

2020-21

ADMITTED BATCH
<table>
<thead>
<tr>
<th>I SEM</th>
<th>1ST YEAR</th>
<th>22 Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>English (language)</td>
<td>3+0=3</td>
</tr>
<tr>
<td>2.</td>
<td>Telugu (language)</td>
<td>3+0=3</td>
</tr>
<tr>
<td>3.</td>
<td>Human Values and Professional Ethics (Skill development)</td>
<td>2+0=2</td>
</tr>
<tr>
<td>4.</td>
<td>Plant Nursery (Skill development)</td>
<td>2+0=2</td>
</tr>
<tr>
<td>5.</td>
<td>Introduction to Agronomy (Core subject)</td>
<td>4+2=6</td>
</tr>
<tr>
<td>6.</td>
<td>Introduction to Soil science (Core subject)</td>
<td>4+2=6</td>
</tr>
<tr>
<td>7.</td>
<td>Fundamentals of Genetics (Core subject)</td>
<td>4+2=6</td>
</tr>
<tr>
<td></td>
<td><strong>Credits</strong></td>
<td><strong>28</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>II SEM</th>
<th>2ND YEAR</th>
<th>30 Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>English (language)</td>
<td>3+0=3</td>
</tr>
<tr>
<td>2.</td>
<td>Inorganic Chemistry (General education)</td>
<td>3+0=3</td>
</tr>
<tr>
<td>3.</td>
<td>Information &amp; Communication Technology (Skill development)</td>
<td>2+0=2</td>
</tr>
<tr>
<td>4.</td>
<td>Fruits and Vegetables Preservation (Skill development)</td>
<td>2+0=2</td>
</tr>
<tr>
<td>5.</td>
<td>Agriculture Marketing (Skill development)</td>
<td>2+0=2</td>
</tr>
<tr>
<td>6.</td>
<td>Introduction to Entomology (Core subject)</td>
<td>4+2=6</td>
</tr>
<tr>
<td>7.</td>
<td>Introduction to Plant Pathology (Core subject)</td>
<td>4+2=6</td>
</tr>
<tr>
<td>8.</td>
<td>Introduction to Plant Breeding (Core subject)</td>
<td>4+2=6</td>
</tr>
<tr>
<td></td>
<td><strong>Credits</strong></td>
<td><strong>30</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>III SEM</th>
<th>2ND YEAR</th>
<th>30 Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>English (Language)</td>
<td>3+0=3</td>
</tr>
<tr>
<td>2.</td>
<td>Organic Chemistry (General education)</td>
<td>3+0=3</td>
</tr>
<tr>
<td>3.</td>
<td>Health &amp; Hygiene (Skill development)</td>
<td>2+0=2</td>
</tr>
<tr>
<td>4.</td>
<td>Environmental Education (Skill development)</td>
<td>2+0=2</td>
</tr>
<tr>
<td>5.</td>
<td>Disaster Management Skill development</td>
<td>2+0=2</td>
</tr>
<tr>
<td>6.</td>
<td>Agronomy of Field Crops (Core subject)</td>
<td>4+2=6</td>
</tr>
<tr>
<td>7.</td>
<td>Pests of Field Crops &amp; their Management (Core subject)</td>
<td>4+2=6</td>
</tr>
<tr>
<td>8.</td>
<td>Manures, Fertilizers &amp; Soil Fertility Management (Core subject)</td>
<td>4+2=6</td>
</tr>
<tr>
<td></td>
<td><strong>Credits</strong></td>
<td><strong>30</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IV SEM</th>
<th>4TH YEAR</th>
<th>33 Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Physical Chemistry (General education)</td>
<td>3+0=3</td>
</tr>
<tr>
<td>2.</td>
<td>Principles of Organic Farming (Core subject)</td>
<td>4+2=6</td>
</tr>
<tr>
<td>3.</td>
<td>Weed &amp; Water Management (Core subject)</td>
<td>4+2=6</td>
</tr>
<tr>
<td>4.</td>
<td>Fungicides &amp; Plant disease Management (Core subject)</td>
<td>4+2=6</td>
</tr>
<tr>
<td>5.</td>
<td>Farm power &amp; Machinery (Core subject)</td>
<td>4+2=6</td>
</tr>
<tr>
<td>6.</td>
<td>Rain fed Agriculture &amp; Watershed Management (Core subject)</td>
<td>4+2=6</td>
</tr>
<tr>
<td></td>
<td><strong>Credits</strong></td>
<td><strong>33</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>V SEM</th>
<th>3RD YEAR</th>
<th>31 Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Environmental Chemistry (General education)</td>
<td>3+0=3</td>
</tr>
<tr>
<td>2.</td>
<td>Fundamentals of Crop Physiology (Core subject)</td>
<td>4+2=6</td>
</tr>
<tr>
<td>3.</td>
<td>Principles of Seed Technology (Core subject)</td>
<td>4+2=6</td>
</tr>
<tr>
<td>4.</td>
<td>Horticulture (Core subject)</td>
<td>4+2=6</td>
</tr>
<tr>
<td>5.</td>
<td>Introduction to Agricultural Economics and Farm Management (Core subject)</td>
<td>4+2=6</td>
</tr>
<tr>
<td>6.</td>
<td>Project work (Field work)</td>
<td>0+4=4</td>
</tr>
<tr>
<td></td>
<td><strong>Credits</strong></td>
<td><strong>31</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VI SEM</th>
<th>3RD YEAR</th>
<th>28 Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Production Technology for Vegetables &amp; Spices (Core subject)</td>
<td>4+2=6</td>
</tr>
<tr>
<td>2.</td>
<td>Pests of Horticultural Crops &amp; Productive Entomology (Core subject)</td>
<td>4+2=6</td>
</tr>
<tr>
<td>3.</td>
<td>Breeding of Field Crops (Core subject)</td>
<td>4+2=6</td>
</tr>
<tr>
<td>4.</td>
<td>Production Technology of Ornamental Crops, Medicinal &amp; Aromatic Plants (Core subject)</td>
<td>4+2=6</td>
</tr>
<tr>
<td>5.</td>
<td>Project Work (Field work)</td>
<td>0+4=4</td>
</tr>
<tr>
<td></td>
<td><strong>Credits</strong></td>
<td><strong>28</strong></td>
</tr>
</tbody>
</table>

**TOTAL CREDITS** 180
## CURRICULAR FRAME WORK

**B.Vocational course**

### AGRICULTURE

#### 2020-21 ADMITTED BATCH

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Semes ter I</th>
<th>Semes ter II</th>
<th>Semes ter III</th>
<th>Semes ter IV</th>
<th>Semes ter V</th>
<th>Semes ter VI</th>
<th>Total Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>3+0=3</td>
<td>3+0=3</td>
<td>3+0=3</td>
<td>9+0=9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telugu</td>
<td>3+0=3</td>
<td></td>
<td></td>
<td></td>
<td>3+0=3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organic chemistry</td>
<td>3+0=3</td>
<td></td>
<td></td>
<td></td>
<td>3+0=3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inorganic chemistry</td>
<td>3+0=3</td>
<td></td>
<td></td>
<td></td>
<td>3+0=3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical chemistry</td>
<td>3+0=3</td>
<td></td>
<td></td>
<td></td>
<td>3+0=3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental chemistry</td>
<td>3+0=3</td>
<td></td>
<td></td>
<td></td>
<td>3+0=3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Life skills-1</td>
<td>2+0=2</td>
<td>2+0=2</td>
<td>2+0=2</td>
<td>6+0=6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Life skills-2</td>
<td></td>
<td>2+0=2</td>
<td></td>
<td>2+0=2</td>
<td>2+0=2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skill development-1</td>
<td>2+0=2</td>
<td>2+0=2</td>
<td>2+0=2</td>
<td>6+0=6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skill development-2</td>
<td>2+0=2</td>
<td></td>
<td></td>
<td></td>
<td>2+0=2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Core subject-1</td>
<td>4+2=6</td>
<td>4+2=6</td>
<td>4+2=6</td>
<td>20+10=30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Core subject-2</td>
<td>4+2=6</td>
<td>4+2=6</td>
<td>4+2=6</td>
<td>24+12=36</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Core subject-3</td>
<td>4+2=6</td>
<td>4+2=6</td>
<td>4+2=6</td>
<td>24+12=36</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Core subject-4</td>
<td>4+2=6</td>
<td>4+2=6</td>
<td>4+2=6</td>
<td>12+6=18</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Core subject-5</td>
<td>4+2=6</td>
<td></td>
<td></td>
<td>4+2=6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Core subject-6</td>
<td>4+2=6</td>
<td></td>
<td></td>
<td>4+2=6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project work (Field work)</td>
<td>0+4=4</td>
<td>0+4=4</td>
<td>0+8=8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td>22+6=28</td>
<td>24+6=30</td>
<td>24+6=30</td>
<td>23+10=33</td>
<td>19+12=31</td>
<td>16+12=28</td>
<td>128+52=180</td>
</tr>
<tr>
<td>1ST YEAR</td>
<td>I SEM</td>
<td>Course</td>
<td>Credits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>-------</td>
<td>-------------------------------------------</td>
<td>---------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td></td>
<td><strong>1. English (language)</strong></td>
<td>3+0=3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>2. Telugu (language)</strong></td>
<td>3+0=3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>3. Human Values and Professional Ethics</strong> (Skill development)</td>
<td>2+0=2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>4. Plant Nursery</strong> (Skill development)</td>
<td>2+0=2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>5. Introduction to Agronomy</strong> (Core subject)</td>
<td>4+2=6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>6. Introduction to Soil science</strong> (Core subject)</td>
<td>4+2=6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>7. Fundamentals of Genetics</strong> (Core subject)</td>
<td>4+2=6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Total Credits</strong></td>
<td>22+6=28</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ANDHRA UNIVERSITY**
**B. Vocational course**
**AGRICULTURE**
**2020-21 Admitted Batch**
**I Year – Semester I**
**English - 1**
(CREDITS 3+0=3)

**Learning outcome:**

- Use grammar effectively in writing and speaking.
- Demonstrate the use of good vocabulary
- Demonstrate an understating of writing skills
- Acquire ability to use Soft Skills in professional and daily life.
- Confidently use the tools of communication skills

**UNIT-I- Listening Skills**- Importance of Listening, Types of Listening, Barriers to Listening

Effective Listening

**UNIT-II- Speaking Skills**- Sounds of English: Vowels and Consonants, Word Accent, **Intonation**

**UNIT-III- Grammar**- Concord, Modals, Tenses (Present/Past/Future), Articles, Prepositions, Question Tags, Sentence Transformation (Voice, Reported Speech & Degrees of Comparison), Error Correction

**UNIT-IV- Writing**- Punctuation, Spelling, Paragraph Writing

**UNIT-V- Soft Skills**- SWOC, Attitude, Emotional Intelligence, Telephone Etiquette, Interpersonal Skills
MAX. MARKS: 50  

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. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 

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. 
2. 
3. 
4. 
5. 

*****
అంశం: తెలుగు శాస్త్రం
రామగ్రిం-1
శాస్త్రం-1: తెలుగు శాస్త్రం
సంఖ్యలు కొట్టడానికి మీదుగా 60

+ ఆస్తికులు కూడా లోకం:-

1. ప్రత్యేకిత రీతిలో రెండు ప్రాంతాల్లో ప్రభుత్వం రాయిన సామాన్యలతో మీదుగా ఇందులో ప్రాంతం కూడా రాయిన పాటం కూడా మీదుగా.

2. మాట్లాడే చారిత్రక కారకాలాలు, మాంసాచరిత్రక సాంస్కృతిక మాట్లాడే చారిత్రక సాంస్కృతిక, సమాధానానికి పాటం కూడా మీదుగా.

3. మాంసాచరిత్రక రాసి, మాంసాచరిత్రక విద్యాంతాలు, మాంసాచరిత్రక రాసి, మాంసాచరిత్రక విద్యాంతాలు కారకాలాలం కూడా మీదుగా.

4. మాంసాచరిత్రక రాసి, కారకాలం మాంసాచరిత్రక రాసి, కారకాలం మాంసాచరిత్రక రాసి మీదుగా.

5. మాంసాచరిత్రక రాసి, రాసి, కారకాలం మాంసాచరిత్రక రాసి, కారకాలం మాంసాచరిత్రక రాసి మీదుగా.
మార్చి-I

చవకీ - పాటు పరిశీలించండి

మార్చి-II

చవకెజుకు - పాటు పరిశీలించండి

మార్చి-III

చాలా సంఘాటకాలు - పాటు పరిశీలించండి

మార్చి-IV

చాలా సంఘాటకాలు - పాటు పరిశీలించండి

మార్చి-V

చాలా సంఘాటకాలు - పాటు పరిశీలించండి

పాటికం

ప్రశ్న: గంగ, జంగి, ప్రాంతానికి, మండలానికి, పట్టణానికి, సమాధి సంఘాటకాలు, ప్రాంతానికి, తెలంగాణ సంఘాటకాలు.

పరిశీలన: అన్నాయా, రామారామా, జాతి పరిశీలన, తెలంగాణ పరిశీలన.

సంపాదన: తెలంగాణ, జాతి పరిశీలన, తెలంగాణ పరిశీలన, రామారామా, జాతి పరిశీలన.
సాఫ్ట్‌వైరస్ నామం:
1. ప్లేయింగ్ మానం: కమ్యూనిటీ - ఫెనిక్స్ మామూలు పుష్పించడానికి ప్రమాణం
2. ప్లేయింగ్ మానం: మామూలు కార్యక్రమం - ప్లాట్ఫార్మ
3. మామూలు కార్యక్రమం - మండలాలు
4. మామూలు సవాలు సమాధానం - స్పందణక
5. మామూలు పరమాణు - రాగం

+ ఆంశిక కర్తులు కల్పనలు వాటిలోనిల్చరితం:
1. ప్లేయర్ ఒకేపై, లేదా కానూను సంచికలను ప్రారంభించాలను, కానూను ప్రారంభించడం మాత్రం, కానూను నియంత్రించడానికి ప్రవహించడం ద్వారా.
2. ప్లేయర్ ప్రారంభించాలను మాత్రం, కానూను ప్రారంభించడం ద్వారా.
3. ప్లేయర్ ప్రారంభించాలను ప్రారంభించడం ద్వారా.
4. ప్లేయర్ ప్రారంభించాలను ప్రారంభించడం ద్వారా.
5. ప్లేయర్ ప్రారంభించాలను ప్రారంభించడం ద్వారా.

 పరమాణు సిలీన్ సమాధానం

1. కమ్యూనిటీ - మామూల్లినేత (2-1) 1x8=8 రూప
2. కమ్యూనిటీ - మామూలు కార్యక్రమం (2-1) 1x3=3 రూప
3. కమ్యూనిటీ - మామూలు (6-4) 4x3=12 రూప
4. కమ్యూనిటీ - మామూలు ప్రారంభించడం (6-4) 4x3=12 రూప
5. కమ్యూనిటీ - మామూలు ప్రారంభించడం (6-3) 3x8=24 రూప
6. కమ్యూనిటీ - మామూలు (6-4) 4x1=4 రూప
    ప్రారంభించడం (6-4) 4x1=4 రూప
7. కమ్యూనిటీ - మామూలు (2-1) 1x4=4 రూప
8. కమ్యూనిటీ - మామూలు ప్రారంభించడం (2-1) 1x4=4 రూప
Learning Outcome:

On completion of this course, the UG students will be able to

- Understand the significance of value inputs in a classroom and start applying them in their life and profession
- Distinguish between values and skills, happiness and accumulation of physical facilities, the Self and the Body, Intention and Competence of an individual, etc.
- Understand the value of harmonious relationship based on trust and respect in their life and profession
- Understand the role of a human being in ensuring harmony in society and nature.
- Distinguish between ethical and unethical practices, and start working out the strategy to actualize a harmonious environment wherever they work.

UNIT-I
Introduction – Definition, Importance, Process & Classifications of Value Education.
Understanding the need, basic guidelines, content and process for Value Education
Understanding the thought provoking issues; need for Values in our daily life
Choices making – Choosing, Cherishing & Acting
Classification of Value Education: understanding Personal Values, Social Values, Moral Values & Spiritual Values.

UNIT-II
Harmony in the Family – Understanding Values in Human Relationships
Understanding harmony in the Family- the basic unit of human interaction
Understanding the set of proposals to verify the Harmony in the Family;
Trust (Vishwas) and Respect (Samman) as the foundational values of relationship
Present Scenario: Differentiation (Disrespect) in relationships on the basis of body, physical facilities, or beliefs.
Understanding the Problems faced due to differentiation in Relationships
Understanding the harmony in the society (society being an extension of family): Samadhan, Samridhi, Abhay, Sah-asititvaas comprehensive Human Goals
Visualizing a universal harmonious order in society- Undivided Society (AkhandSamaj), Universal Order (SarvabhaumVyawastha)- from family to world family.

UNIT-III
Professional Ethics in Education
Understanding about Professional Integrity, Respect & Equality, Privacy, Building Trusting Relationships.
Understanding the concepts; Positive co-operation, Respecting the competence of other professions.
Understanding about Taking initiative and Promoting the culture of openness.
Depicting Loyalty towards Goals and objectives.
Text Books:

• R R Gaur, R Sangal, G P Bagaria, 2009, A Foundation Course in Human Values and Professional Ethics.
• Bhatia, R. & Bhatia, A (2015) Role of Ethical Values in Indian Higher Education.

References:


Mode of Evaluation:
Assignment/ Seminar/Continuous Assessment Test/Semester End Exam.

Co-curricular Activities:
1. Visit to an Old Age Home and spending with the inmates for a day.
2. Conduct of Group Discussions on the topics related to the syllabus.
3. Participation in community service activities.
4. Working with a NGO like Rotary Club or Lions International, etc.
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
I Year – Semester I
HUMAN VALUES AND PROFESSIONAL ETHICS
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. 
2. 
3. 
4. 
5. 
6. 
7. 
8.

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. 
2. 
3. 
4. 
5.

*****
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
1 Year – Semester I
PLANT NURSERY
(CREDITS 2+0=2)

Learning Outcomes:

On successful completion of this course students will be able to;

- Understand the importance of a plant nursery and basic infrastructure to establish it.
- Explain the basic material, tools and techniques required for nursery.
- Demonstrate expertise related to various practices in a nursery.
- Comprehend knowledge and skills to get an employment or to become an entrepreneur in plant nursery sector.

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

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

UNIT-III
Management of nursery
Seasonal activities and routine operations in a nursery.
Nursery management – watering, weeding and nutrients; pests and diseases.
Common possible errors in nursery activities.
Economics of nursery development, pricing and record maintenance.
Online nursery information and sales systems.

Suggested Co-curricular activities
- Assignments/Group discussion/Quiz/Model Exam.
- Demonstration of nursery bed making.
- Demonstration of preparation of media for nursery.
- Hands on training on vegetative propagation techniques.
- Hands on training on sowing methods of seeds and other material.
- Invited lecture cum demonstration by local expert.
- Watching videos on routine practices in plant nurseries.
- Visit to an agriculture/horticulture/forest nursery.
- Case study on establishment and success of a plant nursery.
Suggested text books/reference books:

- Ratha Krishnan, M., et.al. (2014) Plant nursery management : Principles and practices, Central Arid Zone Research Institute (ICAR), Jodhpur, Rajasthan
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
I Year – Semester I
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. 
2. 
3. 
4. 
5. 
6. 
7. 
8.

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. 
2. 
3. 
4. 
5.

*****
UNIT- I- Importance and scope Agriculture – Definition- Branches of agriculture- History of agricultural development in the World and India.

UNIT – II- Agroclimatic zones- Agronomy - Definition - Importance - Meaning and scope Agroclimatic zones of Andhra Pradesh & India-Crops and their classification- Factors affecting crop production

UNIT – III- Tillage- Types - Objectives - Modern concepts of tillage-Crop establishment methods

UNIT – IV- Manures and fertilizers- Irrigation management -Fertilizer application

UNIT – V- Cropping patterns and cropping systems-Weed management- Sustainable agriculture-Integrated farming systems- Organic agriculture

Reference Books


INTRODUCTION TO AGRONOMY (PRACTICAL)

1. Visit to college farm & study of farm features and measurements
2. Identification of crops and seeds
3. Study of seed treatment practices
4. Study of tillage implements- practicing ploughing, puddling operations.
5. Calculation of the seed rate and fertilized requirements.
6. Different methods of seeds sowing and planting.
7. Methods of inter – cultivation implements
8. Fertilizer applications and participation in field operations
INTRODUCTION TO AGRONOMY
MODEL QUESTION PAPER

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. What do you mean by sustainable Agriculture? Mention the Features of Sustainable Agriculture.
4. Write a note on tillage and list out the importance of tillage.
5. Discuss about zero tillage and Stubble nuclear tillage.
6. Differentiate between manners and fertilizers.
7. What do you mean by Cropping system and Cropping pattern.
8. What is a Crop? Classify the crops.

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 manners? List out the most Familiar manners.

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.
INTRODUCTION TO SOIL SCIENCE

UNIT – I- Introduction
Definition of soil, Soil as a Natural Body

UNIT – II- Soil Components
Soil air, Soil water, Organic and inorganic solids

UNIT – III- Physical Properties:
Soil separates, texture, Aggregation and Structural Characters, Temperature, Colour, Properties of Soil Mixture, Pore Space, Bulk Density, Particle Density, Aeration, Drainage, compaction, Surface area, Soil water relations.

UNIT - IV. 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 – V- Genesis and Classification
Profile, Soil forming factors, Soil Survey methods, Soil survey Reports, Soil distribution, Classification of Systems, Drainage, Erosion: Mechanisms and Control.

References

INTRODUCTION TO SOIL SCIENCE (PRACTICAL)
1. Soil sampling procedures for field and horticultural crops
2. Determination of EC.
3. Determination of PH of soil.
4. Land use, texture bulk density, Definition of Soil Physical properties.
5. Determination of N, P and K of the soil
6. Determination of Sulphur.
7. Fertilizer recommendations.
8. Soil health card, parameters, EC, PH and their Importance
SECTION – A

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

1. Define Soil? Why it is called OS natural body?
2. Discuss about the profile of the Soil.
3. What do you mean by soil texture and soil structure?
4. Write a note on soil Air and Soil water.
5. What do you mean by soil colour? What was the impact of soil colour on crop growth.
6. Define Soil Science and mention the importance of soil science knowledge.
7. What is Soil survey and dismiss about soil survey reports.
8. Write a note on classification of soil.

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) Scope and importance of soil sciences and how it helps for future agriculture. (OR)
   b) Write a note on sulphur transformation.
UNIT – I

- 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; Ribonucleic Acid (RNA) – structure, function and types – messenger RNA (mRNA), ribosomal RNA (rRNA) and transfer RNA (tRNA) – differences between DNA and RNA

UNIT - II

- Gene expression and differential gene activation – Operon concept – Lac Operon
- Meiosis – definition – process – differences between mitosis and meiosis – significance in plant breeding
- Arrangement of genes on chromosomes – linkage – definition – linkage groups
- Coupling phase and repulsion phase – types of linkage – distinction between linkage and pleiotropism
- Crossing over – mechanism of crossing over – types of crossing over – factors effecting crossing over – crossing over at four strand stage – cytological proof of crossing over in Drosophila – significance of crossing over in plant breeding – coincidence – interference

UNIT - III

- Monohybrid and dihybrid ratios – modifications of F2 ratio in monohybrid and dihybrid crosses and lethal factors
- Gene action – types of gene action – pleiotropism – alleles – characteristic features of alleles – multiple alleles (blood groups in human beings, fur / coat colour in rabbits and self-incompatibility alleles in plants) – characteristic features of multiple alleles – pseudo-alleles – penetrance (complete penetrance and incomplete penetrance) and expressivity (uniform expressivity and variable expressivity)

UNIT - IV

- Cytoplasmic inheritance – definition – chloroplast inheritance (leaf variegation in Mirabilis jalapa and iojap in maize) – mitochondrial inheritance (cytoplasmic male sterility in maize and pokyness in Neurospora) – characteristic features
- Of cytoplasmic inheritance – differences between chromosomal and extrachromosomal inheritance
- Gene mutations – artificial induction of mutations – physical and chemical mutagens –
molecular basis of mutations – detection of sex linked lethals in *Drosophila* by CLB technique – detection of mutations in plants – importance of mutation in plant breeding programmes – chimeras – xenia and metaxenia

- Structural chromosomal aberrations – breakage-fusion-bridge cycle – deletions (deficiencies), duplications and their significance in plant breeding

**UNIT - V**

- Numerical chromosomal aberrations – aneuploidy – types of aneuploids – monosomics, double monosomics, nullisomics, double nullisomics, trisomics (primary, secondary and tertiary trisomics) and tetrasomics – their cytological behaviour and significance in plant breeding – effects of polyploidy
- Genomic approaches in agriculture – definitions of genomics, structural genomics and functional genomics – Human Genome Project – genome size – brief outline

**References**


**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
2020-21 Admitted Batch
I Year Semester – I
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 labeled diagram.
3. Differentiate between linkage & Crossing over.
4. Explain Mendel’s law of heredity with suitable examples.
5. Write the Properties of Genetic code.
6. Write about types of DNA & RNA.
7. Explain the experiment to show cytological proof of crossing over.
8. Explain the different types of structural chromosomal aberration with suitable illustrations.

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

1. a) Explain Semi Conservative method of replication.
   (OR)
   b) Explain the experiment for identification of recessive lethal mutations in Drosophila.
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) Describe the effects of various factors that affect the frequency of recombination.
5. a) Explain the Phenomenon of multiple allele with the help of an appropriate example.
   (OR)
   b) Write about classification, Characteristics of linkage
| II SEM | 1. **English** (language) | 3+0=3 |
|        | 2. **Inorganic Chemistry** (General education) | 3+0=3 |
|        | 3. **Information & Communication Technology** (Skill development) | 2+0=2 |
|        | 4. **Fruits and Vegetables Preservation** (Skill development) | 2+0=2 |
|        | 5. **Agriculture Marketing** (Skill development) | 2+0=2 |
|        | 6. **Introduction to Entomology** (Core subject) | 4+2=6 |
|        | 7. **Introduction to Plant Pathology** (Core subject) | 4+2=6 |
|        | 8. **Introduction to Plant Breeding** (Core subject) | 4+2=6 |

**Total Credits=24+6=30**

---

**ANDHRA UNIVERSITY**

B. Vocational course

**AGRICULTURE**

2020-21 Admitted Batch

I Year Semester – II

**ENGLISH-2**

(CREDITS 3+0=3)

**Learning Outcomes:**

- Use reading skills effectively
- Comprehend different texts
- Interpret different types of texts
- Write well for any purpose
- Improve writing skills independently for future needs

**I. UNIT**

**Prose**

1. How to Avoid Foolish Opinions  Bertrand Russell

**Skills**

2. Vocabulary: Conversion of Words

3. One Word Substitutes

4. Collocations

**II. UNIT**

**Prose**

1. The Doll's House  Katherine Mansfield

**Poetry**

2. Ode to the West Wind  P B Shelley

**Non-Detailed Text**

3. Florence Nightingale  Abrar Mohsin

**Skills**

4. Skimming and Scanning

**III. UNIT**

**Prose**

1. The Night Train at Deoli  Ruskin Bond

**Poetry**

2. Upagupta  Rabindranath Tagore

**Skills**

3. Reading Comprehension

4. Note Making/Taking

**IV. UNIT**

**Poetry**

1. Coromandel Fishers  Sarojini Naidu

**Skills**

2. Expansion of Ideas

3. Notices, Agendas and Minutes

**V. UNIT**

**Non-Detailed Text**

1. An Astrologer's Day  R K Narayan

**Skills**

2. Curriculum Vitae and Resume

3. Letters

4. E-Correspondence
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
I Year – Semester II
ENGLISH - 2
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. 
2. 
3. 
4. 
5. 
6. 
7. 
8.

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. 
2. 
3. 
4. 
5.

*****
UNIT –I

P-BLOCK ELEMENTS
Group-13: Synthesis and structure of diborane and boron- nitrogen compounds (B3N3H6 and BN) and Group - 14: Preparation and applications of silanes, silicones and Group - 15: Preparation and reactions of hydrazine, hydroxylamine.

UNIT-II
P-BLOCK ELEMENTS -II
Group - 16: Classifications of oxides based on (i) Chemical behaviour and (ii) Oxygen content, Oxyacids of sulphur (structures only). Group-17: Inter halogen compounds, pseudo halogens and comparision with halogens.

UNIT-III
Organometallic Chemistry
Definition - classification of Organometallic compounds - nomenclature, preparation, properties and applications of alkyls of Li and Mg.

UNIT –IV
1. Chemistry of d-block elements:
   Characteristics of d-block elements with special reference to electronic configuration, variable valence, magnetic properties, catalytic properties and ability to form complexes. Stability of various oxidation states.
2. Theories of bonding in metals:
   Metallic properties and its limitations, Valence bond theory, Free electron theory, Explanation of thermal and electrical conductivity of metals, limitations, Band theory, formation of bands, explanation of conductors, semiconductors and insulators.

UNIT –V
1. Metal carbonyls: EAN rule, classification of metal carbonyls, structures and shapes of metal carbonyls of V, Cr, Mn, Fe, Co and Ni.

List of Reference Books
2. Inorganic Chemistry J E Huheey, E A Keiter and R L Keiter
3. Advanced Inorganic chemistry by Gurudeep Raj
4. Basic Inorganic Chemistry by Cotton and Wilkinson
5. Concise Inorganic Chemistry by J.D.Lee
INORGANIC CHEMISTRY (PRACTICAL) QUALITATIVE INORGANIC ANALYSIS

Analysis of mixture salt containing two anions and two cations (From two different groups) from the following:

**Anions:** Carbonate, sulphate, chloride, bromide, acetate, nitrate, borate, phosphate.

**Cations:** Lead, copper, iron, aluminium, zinc, manganese, calcium, strontium, barium, potassium and ammonium.
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
I Year – Semester II
INORGANIC CHEMISTRY
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.
2.
3.
4.
5.
6.
7.
8.

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.
2.
3.
4.
5.

*****
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
1 Year – Semester II
INFORMATION AND COMMUNICATION
TECHNOLOGY
(CREDITS 2+0=2)

Learning outcomes:
★ Understand the literature of social networks and their properties.
★ Explain which network is suitable for whom.
★ Develop skills to use various social networking sites like twitter, flickr, etc.
★ Learn few GOI digital initiatives in higher education.
★ Apply skills to use online forums, docs, spreadsheets, etc for communication, collaboration and research.
★ Get acquainted with internet threats and security mechanisms.

UNIT-I- Fundamentals of Internet: What is Internet?, Internet applications, Internet Addressing – Entering a Web Site Address, URL–Components of URL, Searching the Internet, Browser –Types of Browsers, Introduction to Social Networking: Twitter, Tumblr, LinkedIn, Facebook, flickr, Skype, yahoo, YouTube, WhatsApp.

UNIT-II- E-mail: Definition of E-mail -Advantages and Disadvantages –User Ids, Passwords, Email Addresses, Domain Names, Mailers, Message Components, Message Composition, Mail Management, G-Suite: Google drive, Google documents, Google spread sheets, Google Slides and Google forms.

UNIT-III- Overview of Internet security, E-mail threats and secure E-mail, Viruses and antivirus software, Firewalls, Cryptography, Digital signatures, Copyright issues. What are GOI digital initiatives in higher education? (SWAYAM, Swayam Prabha, National Academic Depository, National Digital Library of India, E-Sodh-Sindhu, Virtual labs, e-acharya, e-Yantra and NPTEL).

RECOMMENDED CO-CURRICULAR ACTIVITIES:
(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)
★ Assignments(in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
★ Student seminars (on topics of the syllabus and related aspects (individual activity)
★ Quiz and Group Discussion
★ Slip Test
★ Try to solve MCQ’s available online.
★ Suggested student hands on activities :
a. Create your accounts for the above social networking sites and explore them, establish a video
conference using Skype.

b. Create an Email account for yourself- Send an email with two attachments to another friend. Group the email addresses use address folder.

c. Register for one online course through any of the online learning platformslike NPTEL, SWAYAM, Alison, Codecademy, Coursera. Create a registration form for your college campus placement through Google forms.

Reference:

2. Internet technology and Web design, ISRD group, TMH.
3. Information Technology – The breaking wave, Dennis P.Curtin, Kim Foley, KunaiSen and Cathleen Morin, TMH.
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
I Year – Semester II
INFORMATION AND COMMUNICATION TECHNOLOGY
MODEL QUESTION PAPER

Time: 1 1/2 hrs (90 Minutes) Max. Marks: 50

SECTION -A
(Total: 4x5=20 Marks)

(Answer any four questions. Each answer carries 5 marks)

(Total 8 questions. At least 1 question should be given from each Unit)

1.  
2.  
3.  
4.  
5.  
6.  
7.  
8.  

SECTION- B
(Total: 3x10 = 30 Marks)

(Answer any three questions. Each answer carries 10 marks)

(Total five questions. At least 1 question should be given from each Unit)

1.  
2.  
3.  
4.  
5.  
Learning Outcomes:
On successful completion of this course the students will be able to;

- Identify various types of fruits and vegetables and explain their nutritive value.
- Understand the fragile nature of fruits and vegetables and causes for their damage.
- Explain various methods of preservation for fresh fruits and vegetables.
- Get to know the value-added products made from fruits and vegetables.

UNIT – I- 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 – II- 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 – III- 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.
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 :
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 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. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 

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. 
2. 
3. 
4. 
5. 

***
Learning Outcomes:
By the successful completion of this course, the student will be able to;

★ Know the kinds of agricultural products and their movement
★ Understand the types, structure and functioning of agricultural marketing system
★ Comprehend related skills and apply them in sample situations
★ Extend this knowledge and skills to their production/consumption environment

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).


Suggested Co-curricular Activities
1. Study visit to agricultural markets and Rythu Bharosa Kendras (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
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, Odisha
5. Wikipedia and other websites on Agricultural Marketing.
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
I Year – Semester II
AGRICULTURE MARKETING
MODEL QUESTION PAPER

Max. Marks: 50   Time: 1 1/2 hrs (90 Minutes)

SECTION A

(Total: 4x5=20 Marks)

Answer any four questions. Each answer carries 5 marks

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

1.  
2.  
3.  
4.  
5.  
6.  
7.  
8.  

SECTION B

(Total: 3x10 = 30 Marks)

(Answer any three questions. Each answer carries 10 marks

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

1.  
2.  
3.  
4.  
5.  
UNIT I- History and importance
  History of Entomology in India; Position of insects in the animal kingdom and their relationship with other classes of Arthropoda; Reasons for insect dominance.

UNIT II- Morphology
  General organisation of insect body wall - structure and function, cuticular appendages, moulting; Body regions - insect head, thorax and abdomen, their structure and appendages.

UNIT III- Anatomy and physiology
  Digestive, excretory, respiratory, circulatory, nervous and reproductive systems in insects in brief

UNIT IV-Taxonomy of Apterygota and Exopterygota
  Insect systematics; Distinguishing characters of agriculturally important orders and families of Hexapoda. Characters of Apterygota, 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,
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.
7. Study of digestive and reproductive systems of grasshopper / cockroach.
8. Observing the characters of agriculturally important orders and families.
SECTION – A

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

1.
2.
3.
4.
5.
6.
7.
8.

SECTION – B

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

1. a) 
   (OR)
   b) 
2. a) 
   (OR)
   b) 
3. a) 
   (OR)
   b) 
4. a) 
   (OR)
   b) 
5. a) 
   (OR)
   b) 

UNIT 1: 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

UNIT 2: Fungi
   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 3: Bacteria and Mollicutes
   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 4: Plant Viruses
   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 5: 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.

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.
7. Study of phanerogamic parasites.
8. 30 Herbarium.
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
I Year Semester – II
INTRODUCTION TO PLANT PATHOLOGY
MODEL QUESTION PAPER

SECTION – A

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

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 

SECTION – B

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

9. a) 
   (OR)
   b) 
10. a) 
    (OR)
    b) 
11. a) 
    (OR)
    b) 
12. a) 
    (OR)
    b) 
13. a) 
    (OR)
    b)
UNIT-I-
Historical development, concept, nature and role of plant breeding, major achievements and future prospects; Genetics in relation to plant breeding; Heritability and genetic advance; modes of reproduction and apomixes; self – incompatibility and male sterility- genetic consequences, cultivar options;

UNIT-II-
Domestication, Acclimatization, introduction, Centre of origin/diversity; Genetic basis and breeding methods in self-pollinated crops-mass and pure line selection, hybridization techniques and handling of segregating population; Multiline concept; Concepts of population genetics and Hardy Weinberg Law;

UNIT-III-
Genetic basis and methods of breeding cross pollinated crops, modes of selection; Heterosis and inbreeding depression, development of inbred lines and hybrids, composite and synthetic varieties;

UNIT-IV-
Breeding methods in asexually propagated crops, clonal selection and hybridization; Wide hybridization and pre-breeding; Polyploidy in relation to plant breeding; mutation breeding-methods and uses;

UNIT-V
Breeding for important biotic and abiotic stresses; Biotechnological tools-DNA markers and marker assisted selection. Participatory plant breeding.

INTRODUCTION TO PLANT BREEDING (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.
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
I Year Semester – II
INTRODUCTION TO PLANT BREEDING
MODEL QUESTION PAPER

SECTION – A

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

1.
2.
3.
4.
5.
6.
7.
8.

SECTION – B

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

9. a) 
   (OR)
   b)
10. a) 
    (OR)
    b)
11. a) 
    (OR)
    b)
12. a) 
    (OR)
    b)
13. a) 
    (OR)
    b)
I. **FIELD TRIP** (3) : 3 trips X 5 M = 15 Marks (Attendance for each trip 5 marks)

II. **PROJECT REPORT** : 10 Marks

III. **FIELD WORK** : 10 X 1M Per Practical = 10 Marks

IV. **ECONOMICAL SURVEY** : 2.5M X 2 FARMERS = 5 MARKS (Interaction with two farmers and gathering the data)

V. **SEMINAR** : 5 Marks

VI. **VIVA** : 5 Marks

**TOTAL MARKS** : 50 Marks
<table>
<thead>
<tr>
<th>2ND YEAR</th>
<th>III SEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>English</strong> (Language)</td>
<td>3+0=3</td>
</tr>
<tr>
<td>2. <strong>Organic Chemistry</strong> (General education)</td>
<td>3+0=3</td>
</tr>
<tr>
<td>3. <strong>Health &amp;Hygiene</strong> (Skill development)</td>
<td>2+0=2</td>
</tr>
<tr>
<td>4. <strong>Environmental Education</strong> (Skill development)</td>
<td>2+0=2</td>
</tr>
<tr>
<td>5. <strong>Disaster Management</strong> (Core subject)</td>
<td>4+2=6</td>
</tr>
<tr>
<td>6. <strong>Agronomy of Field Crops</strong> (Core subject)</td>
<td>4+2=6</td>
</tr>
<tr>
<td>7. <strong>Pests of Field Crops &amp; their Management</strong> (Core subject)</td>
<td>4+2=6</td>
</tr>
<tr>
<td>8. <strong>Manures, Fertilizers &amp; Soil Fertility Management</strong> (Core subject)</td>
<td>4+2=6</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td>24+6=30</td>
</tr>
</tbody>
</table>

**ANDHRA UNIVERSITY**

**B. Vocational course**

**AGRICULTURE**

**2020-21 Admitted Batch**

**II Year – Semester III**

**English - 3**

(CREDITS 3+0=3)

**Learning Outcomes**

By the end of the course the learner will be able to:

- Speak fluently in English
- Participate confidently in any social interaction
- Face any professional discourse
- Demonstrate critical thinking
- Enhance conversational skills by observing the professional interviews

**I. UNIT**

**Speech:**

- 1. Tryst with Destiny
  
  Jawaharlal Nehru

**Skills:**

- 2. Greetings
- 3. Introductions

**II. UNIT**

**Speech:**

- 1. Yes, We Can
  
  Barack Obama

**Interview:**

- 2. A Leader Should Know How to Manage Failure
  
  Dr.A.P.J.Abdul Kalam/ India Knowledge at Wharton

**Skills:**

- 3. Requests

**III. UNIT**

**Interview:**

- 1. Nelson Mandela's Interview
  
  With Larry King

**Skills:**

- 2. Asking and Giving Information
- 3. Agreeing and Disagreeing

**IV. UNIT**

**Interview:**

- 1. JRD Tata's Interview
  
  With T.N.Ninan

**Skills:**

- 2. Dialogue Building
- 3. Giving Instructions/Directions

**V. UNIT**

**Speech:**

- 1. You've Got to Find What You Love
  
  Steve Jobs

**Skills:**

- 2. Debates
- 3. Descriptions
- 4. Role Play
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
II Year – Semester III
ENGLISH - 3
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. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 

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. 
2. 
3. 
4. 
5. 

*****
UNIT-I
Structural theory in Organic Chemistry. Types of bond fission and organic reagents (Electrophilic, Nucleophilic, and free radical reagents including neutral molecules like H2O, NH3 & AlCl3). Bond polarization: Factors influencing the polarization of covalent bonds, electro negativity - inductive effect. Application of inductive effect (a) Basicity of amines (b) Acidity of carboxylic acids (c) Stability of carbonium ions. Resonance or Mesomeric effect, application to (a) acidity of phenol, and (b) acidity of carboxylic acids. Hyperconjugation and its application to stability of carbonium ions, Free radicals and alkenes, carbanions, carbenes and nitrenes. Types of Organic reactions: Addition - electrophilic, nucleophilic and free radical. Substitution - electrophilic, nucleophilic and free radical. Elimination- Examples.

UNIT-II
Acyclic Hydrocarbons
Alkynes - Preparation by dehydrohalogenation of dihalides, dehalogenation of tetrahalides, Properties; Alicyclic hydrocarbons (Cycloalkanes) Nomenclature, Preparation by Freunds method, Wislicenus method. Properties - reactivity of cyclopropane and cyclobutane by comparing with alkanes, Stability of cycloalkanes - Baeyer's strain theory.

UNIT-III
Benzene and its reactivity. Concept of resonance, resonance energy. Heat of hydrogenation, heat of combustion of Benzene, mention of C-C bond lengths and orbital picture of Benzene. Concept of aromaticity - aromaticity (definition), Huckel's rule - application to Benzenoid (Benzene, Naphthalene) and Non - Benzenoid compounds (cyclopropenyl cation, cyclopentadienyl anion and tropylium cation) Reactions - General mechanism of electrophilic substitution, mechanism of nitration, Friedel Craft's alkylation and acylation. Orientation of aromatic substitution – Definition of ortho, para and meta directing groups. Ring activating and deactivating groups with examples (Electronic interpretation of various groups like NO2 and Phenolic). Orientation of (i) Amino, methoxy and methyl groups (ii) Carboxy, nitro, nitrile, carbonyl and sulphonic acid groups (iii) Halogens (Explanation by taking minimum of one example from each type)
UNIT – IV
Halogen compounds
Nomenclature and classification of alkyl (into primary, secondary, tertiary), aryl, aryl alkyl, allyl, vinyl, benzyl halides. Nucleophilic aliphatic substitution reaction - classification into SN<sub>1</sub> and SN<sub>2</sub> - reaction mechanism with examples – Ethyl chloride, t-butyl chloride.
Hydroxy compounds

UNIT-V
Carbonyl compounds
Nomenclature of aliphatic and aromatic carbonyl compounds, structure of the carbonyl group.
Synthesis of aldehydes from acid chlorides, synthesis of aldehydes and ketones using 1,3-dithianes, synthesis of ketones from nitriles and from carboxylic acids.
Nucleophilic addition reaction with a) NaHSO<sub>3</sub>, b) HCN, c) RMgX, d) NH<sub>2</sub>OH, e) PhNHNH<sub>2</sub>, f) 2,4 DNPH, g) Alcohols-formation of hemiacetal and acetal. Base catalysed reactions: a) Aldol, b) Cannizzaro’s reaction, c) Perkin reaction, d) Benzoin condensation, e) Haloform reaction, f) Knoevenagel reaction. Oxidation of aldehydes-Baeyer-Villiger oxidation of ketones. Reduction: Clemmensen reduction, Wolf-Kishner reduction, MPV reduction, reduction with LiAlH<sub>4</sub> and NaBH<sub>4</sub>.

List of Reference Books
1. A Text Book of Organic Chemistry by B.S. Bahl and Arun Bahl
3. Organic chemistry by Bruice
4. Organic chemistry by Clayden
5. A Text Book of Organic Chemistry by B.S. Bahl and Arun Bahl

ORGANIC CHEMISTRY (PRACTICAL) ORGANIC QUALITATIVE ANALYSIS:

Analysis of an organic compound through systematic qualitative procedure for functional group identification of following compounds.
Alcohols, Phenols, Aldehydes, ketones, carboxylic Acids and Amides.
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
II Year – Semester III
ORGANIC CHEMISTRY
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. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 

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. 
2. 
3. 
4. 
5. 

*****
Learning / Course Outcomes: On completion of this course, the students will be able to understand -

- What is a healthy diet
- How can we use available information to optimize our diet?
- Can nutrition be used for a healthy life?
- Is there a one-size-fits-all “good” diet or should we individualize our dietary goals?
- Disaster management and responsiveness of public in pandemic and epidemics
- Assess the impact of policies on health and hygiene Health measures to consider while travelling
- Awareness in public through digital media viz., mobile apps

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

UNIT II: Health
- Health - Determinants of health, Key Health Indicators, Environment health & Public health; Health-Education: Principles and Strategies
- 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
- 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 (RKS)
- Disaster Management – Containment, Control and Prevention of Epidemics and Pandemics – Acts, Guidelines and Role of Government and Public
UNIT III: Hygiene

- Hygiene – Definition; Personal, Community, Medical and Culinary hygiene; WASH (WAter, Sanitation and Hygiene) programme
- Rural Community Health: Village health sanitation & Nutritional committee (Roles & Responsibilities); About Accredited Social Health Activist (ASHA); Village Health Nutrition Day, Rogi Kalyan Samitis
- Community & Personal Hygiene: Environmental Sanitation and Sanitation in Public places
- 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 aspataal), India fights Dengue, JSK Helpline, Ayushman Bhava, Arogya Setu, Covid 19AP

REFERENCES

5. Weblinks: [https://nhm.gov.in/](https://nhm.gov.in/)
   - National Rural Health Scheme: [https://nhm.gov.in/index1.php?lang=1&level=1&sublinkid=969&lid=49](https://nhm.gov.in/index1.php?lang=1&level=1&sublinkid=969&lid=49)
   - Health Impact Assessment - [https://www.who.int/hia/about/faq/en/](https://www.who.int/hia/about/faq/en/) (suggested information only)
   - WASH [https://www.unicef.org/wash/](https://www.unicef.org/wash/)
   - Healthy Living [https://www.nhp.gov.in/healthylivingViewall](https://www.nhp.gov.in/healthylivingViewall)
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
II Year – Semester III
HEALTH & HYGIENE
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. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 

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. 
2. 
3. 
4. 
5. 

*****
Learning outcomes: On completion of this course the students will be able to

- Understand the nature, components of an ecosystem and that humans are an integral part of nature.
- Realize the importance of environment, the goods and services of a healthy biodiversity, dependence of humans on environment.
- Evaluate the ways and ill effects of destruction of environment, population explosion on ecosystems and global problems consequent to anthropogenic activities.
- Discuss the laws/acts made by government to prevent pollution, to protect biodiversity and environment as a whole.
- Acquaint with international agreements and national movements, and realize citizen’s role in protecting environment and nature.

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

UNIT-II- Environmental degradation and impacts
- Human population growth and its impacts on environment; land use change, land degradation, soil erosion and desertification.
- Use and over-exploitation of surface and ground water, construction of dams, floods, conflicts over water (within India).
- Deforestation: Causes and effects due to expansion of agriculture, firewood, mining, forest fires and building of new habitats.
- Non-renewable energy resources, their utilization and influences.
- A brief account of air, water, soil and noise pollutions; Biological, industrial and solidwastes in urban areas. Human health and economic risks.
- Green house effect - global warming; ocean acidification, ozone layer depletion, acid rains and impacts on human communities and agriculture.
- Threats to biodiversity: Natural calamities, habitat destruction and fragmentation, over exploitation, hunting and poaching, introduction of exotic species, pollution, predator and pest control.
UNIT III - Conservation of Environment
- Concept of sustainability and sustainable development with judicious use of land, water and forest resources; afforestation.
- Control measures for various types of pollution; use of renewable and alternate sources of energy.
- Solid waste management: Control measures of urban and industrial waste.
- Conservation of biodiversity: In-situ and ex-situ conservation of biodiversity.
- Environment Laws: Environment Protection Act; Act; Wildlife Protection Act; Forest Conservation Act.
- International agreements: Montreal and Kyoto protocols; Environmental movements: Bishnois of Rajasthan, Chipko, Silent valley.

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

Suggested text book:

Reference books:
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
II Year – Semester III
ENVIRONMENTAL EDUCATION
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.
2.
3.
4.
5.
6.
7.
8.

SECTION B
(3x10=30 Marks)

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

1.
2.
3.
4.
5.

*****
Learning Outcomes:
After successful completion of the course, the students are able to;

- Understand the nature, cause and effects of disasters
- Comprehend the importance of Disaster Management and the need of awareness
- Acquire knowledge on disaster preparedness, recovery remedial measures and personal precautions
- Volunteer in pre and post disaster management service activities

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-

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
2020-21 Admitted Batch
II Year – Semester III
DISASTER MANAGEMENT
MODEL QUESTION PAPER

Max Marks: 50 Time: 1 ½ hr (90 Min)

SECTION A
(Total: 4×5 = 20 Marks)

(Answer any four questions. Each answer carries 5 marks
(At least 1 question should be given from each Unit)
1. 
2. 
3. 
4. 
5. 
6. 
7. 
8.

SECTION B
(Total: 3×10 = 30 Marks)

(Answer any three questions. Each answer carries 10 marks
(At least 1 question should be given from each Unit)
1. 
2. 
3. 
4. 
5. 
6.
UNIT-I: CEREALS : Rice, wheat.

UNIT-II: MILLETS : Maize, 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, Coconut and oil palm

UNIT-V: SUGAR & FIBER CROPS: Sugarcane, Sweet sorghum, Cotton, Jute, Mestha, Sunhemp

UNIT-VI: OTHER CROPS AND FODDER CROPS:: Tobacco, Fodder, sorghum, cowpea, napier, lucern, berseam, oats

Reference Books
   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 Ludhina
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. Working out cost and returns of important cereals, millets and pulses.
10. Collection of seeds of field crops.
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 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 & Corchorous Olitorius.
2. Explain about Sorghum effect.
3. Write about Refting 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 some varieties of Wheat, Maize, Sunflower, Cotton & Sorghum.
8. Write down common names, scientific names and their origins of all major & minor millets.

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 general package of practices of oilseeds.
4. a) Write about nutrient management of Rice, wheat & Maize.
   b) Write about nutrient management of Groundnut, Cotton & Sunflower.
5. a) Write Seed rate, souring, nutrient management, water Management, Weed Management, harvesting & yield of groundnut.
   (OR)
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, sorghum and ragi.

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, gingelly, sunflower, safflower, soybean 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 Green Manures, Stored Products, bionomics, symptoms of damage and management strategies of pests of green manures (Sunnhemp, Sesbania, Daicha) and stored products.

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
11. Calculation on the doses and their application techniques
12. Assessment of loses in stored grain pests, fumigation of grains stored in godowns
13. Visit to nearest FCI/AWC/SWC godown.

Reference Books
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
II Year – Semester III
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 Leaf eating caterpillar and Diamond back moth.
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 marks (5*10 = 50)

9. a) Write down IPM practices of Paddy.
   (OR)
   b) Write down symptoms and management for Mustard saw fly, Groundnut aphid and sorghum gall fly.

10. a) Write down IPM practices of Pulses.
   (OR)
   b) Write down symptoms and management for termites, castor shoot borer, and castor jassids.

11. a) Write down IPM practices of Cotton.
   (OR)
   b) Write down symptoms and management for spotted boll worm, Red cotton bug, and cotton thrips.

12. 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.

13. 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.
UNIT–I : Essential Nutrients Soil fertility and productivity-

UNIT–II : Nutrient Dynamics

UNIT–III : Classification of Fertilizers

UNIT–IV : Application Methods

UNIT–V : Nutrient Management

UNIT–VI : Compost and composting- Green manures- Definitions of penning -Introduction and importance of organic manures- Bulky organic manures- Different methods of composting including the starters and raw materials

References
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 on N in plant samples
9. Estimation of P in plant samples
10. Estimation of K&S in plant samples
11. Identification acid radicals in fertilizers/salts
12. Identification of basic radicals in fertilizers/salts
13. Estimation of N in Ammonium sulphate
14. Estimation of N in Urea and FYM
15. Estimation of water soluble P2Os SSP
16. Estimation of K Muriate of potosh or Sulphate of potosh by using flame photo meter.
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
II Year Semester – III
MANURES, FERTILIZERS AND SOIL FERTILITY MANAGEMENT
MODEL QUESTION PAPER

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

1.
2.
3.
4.
5.
6.
7.
8.

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

1. a) (OR)
   b) (OR)
2. a) (OR)
   b) (OR)
3. a) (OR)
   b) (OR)
4. a) (OR)
   b) (OR)
5. a) (OR)
   b)
ON JOB TRAINING - III

I. FIELD TRIP (3) : 3 trips X 5 M = 15 Marks

II. PROJECT REPORT : 15 Marks

III. FIELD WORK : 10 X 1M = 10 Marks

IV. SEMINAR : 5 Marks

V. VIVA : 5 Marks

VI. TOTAL MARKS : 50 Marks
UNIT-I
SOLID-STATE

UNIT-II
1. GASEOUS STATE

2. LIQUID STATE
Liquid crystals, the mesomorphic state. Classification of liquid crystals into Smectic and Nematic. Differences between liquid crystal and solid/liquid. Application of liquid crystals as LCD devices.

UNIT-III
DILUTE SOLUTIONS

UNIT-IV
Electrochemistry-I
UNIT-V
Electrochemistry - II

Single electrode potential, sign convention, Reversible and irreversible cells Nernst Equation- Reference electrode, Standard Hydrogen electrode, calomel electrode, Determination of EMF of cell, Applications of EMF measurements - Potentiometric titrations.

Phase rule
Concept of phase, components, degrees of freedom. Thermodynamic Derivation of Gibbs phase rule. Phase equilibrium of one component system - water system. Phase equilibrium of two- component system, solid-liquid equilibrium. Simple eutectic diagram of Pb-Ag system, simple eutectic diagram, Freezing mixtures.

List of Reference Books

1. Modern Electrochemistry by J.O. M. Bockris and A.K.N.Reddy
2. Advanced Physical Chemistry by Atkins
3. Introduction to Electrochemistry by S. Glasstone
4. Text Book of Physical Chemistry by Puri and Sharma

PHYSICAL CHEMISTRY (PRACTICAL)

1. Critical Solution Temperature- Phenol-Water system

2. Effect of NaCl on critical solution temperature (Phenol-Water system)

3. Determination of concentration of HCl conductometrically using standard NaOH solution.
4. Determination of concentration of acetic acid conductometrically using standard NaOH Solution.
PRINCIPLES OF ORGANIC FARMING

UNIT - I
- 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

UNIT - III
- Nutrient use in organic farming-scope and limitations.
- Nutrient management in organic farming.
- Organic ecosystem and their concepts.

UNIT - IV
- Fundamentals of insect, disease and weed management under organic mode of production- cultural- biological methods-non chemical pest and 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
7. Methods of application of Bio-pesticides (Trichocards, BT, NPV)
8. Preparation of neem products and other botanicals for pest and disease control
10. Different methods of biofertiliser applications.
11. Quality analysis of biofertilisers/bioinoculants and compost
12. Case studies of Indigenous Technical knowledge e (ITK) for nutrient , insect, pest, disease and weed management
13. Economic analysis of organic production system
14. Study of post harvest management in organic farming
15. Study of quality parameters of organic produce
16. Visit to organic farms to study the various components and their utilization

References

SECTION – A

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

1.
2.
3.
4.
5.
6.
7.
8.

SECTION – B

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

1. a) (OR)
   b)
2. a) (OR)
   b)
3. a) (OR)
   b)
4. a) (OR)
   b)
5. a) (OR)
   b)
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 biotechnological methods; Integrated weed management.

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

UNIT–III : Importance and History of Irrigation

UNIT–IV : Crop Water Requirement and Management

UNIT–V : Methods of Irrigation
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 residue determination by bioassay techniques.
6. Practicing Skill development on herbicide application techniques and spray equipments.
7. Calculation on irrigation water based on source, water flow, soil moisture status and depth of irrigation and WUE.
8. Land leveling and land shaping – Beds and channels – check basin – ridges and furrows-border strips – broad bed furrow method of irrigation.
9. Operation and maintenance of sprinkler irrigation systems and drip irrigation systems.
10. Scheduling of irrigation based on simple techniques and devices.
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
II Year Semester – IV
WEED AND WATER MANAGEMENT
MODEL QUESTION PAPER

SECTION – A

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

1.
2.
3.
4.
5.
6.
7.
8.

SECTION – B

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

1. a)
   (OR)
   b)
2. a)
   (OR)
   b)
3. a)
   (OR)
   b)
4. a)
   (OR)
   b)
5. a)
   (OR)
   b)
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
II Year – Semester IV
FUNGICIDES AND PLANT DISEASE MANAGEMENT
(CREDITS 4+2=6)

UNIT I

Introduction to plant pathology, terms and concepts used in plant pathology, history of plant pathology. Survival of plant pathogens. Dispersal of plant pathogens

UNIT II

Infection process – pre-penetration, penetration and post-penetration. Role of enzymes in pathogenesis. Role of toxins in pathogenesis

UNIT III

Defense mechanism in plants – structural, induced defense in plants. Plant disease epidemiology. Remote sensing

UNIT IV

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

UNIT V

Host plant resistance. Integrated disease management. Application of bio-technology in plant disease management

FUNGICIDES AND PLANT DISEASE MANAGEMENT (PRACTICAL)

1. Survey and assessment of important plant diseases
2. Seeds health tests – dry seed examination, seed washing, blotter test
3. Preparation of bordeaux mixture
4. Methods of application of fungicides
5. Special methods of application – acid delinting, pseudostem injection, root feeding, pairing and praline, trunk injection
6. Mass multiplication of Trichodermaspp and method of application
7. Cross protection
8. Preparation of leaf extracts
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
II Year Semester – IV
FUNGICIDES AND PLANT DISEASE MANAGEMENT
MODEL QUESTION PAPER

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

1.
2.
3.
4.
5.
6.
7.
8.

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

1. a) (OR)
   b)
2. a) (OR)
   b)
3. a) (OR)
   b)
4. a) (OR)
   b)
5. a) (OR)
   b)
UNIT I:
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.

UNIT II:

UNIT III:
Tillage- Objectives- Classification- Primary Tillage and Secondary tillage implements, Types of tillage.Primary tillage implements- Mouldboard Plough, Disc Plough, Chisel Plough, Subsoiler, Components and Functions, Types, Advantages and Disadvantages.

UNIT IV:

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 intercultivation 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 lubrication and fuel supply system of engine - Familiarization with brake – Steering - Hydraulic control system of engine - Learning of tractor driving - Familiarization with operation of power tiller - Implements for hill agriculture - 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:
SECTION – A

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

1.
2.
3.
4.
5.
6.
7.
8.

SECTION – B

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

1. a) (OR)
   b)
2. a) (OR)
   b)
3. a) (OR)
   b)
4. a) (OR)
   b)
5. a) (OR)
   b)
ON JOB TRAINING – IV

I. FIELD TRIP (3) : 3 trips X 5 M = 15 Marks

II. PROJECT REPORT : 15 Marks

III. FIELD WORK : 10 X 1M = 10 Marks

IV. SEMINAR : 5 Marks

V. VIVA : 5 Marks

VI. TOTAL MARKS : 50 Marks
UNIT - I
1. Rainfed agriculture – introduction and definition – dimensions of the problem – area and production from dry lands in India and Andhra Pradesh – History of rainfed agriculture and watersheds in India.

UNIT - II

UNIT - III

UNIT - IV
10. 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.
12. Efficient crops and varieties – cropping systems in rainfed areas – intercropping – advantages – efficient inter cropping systems in different rainfed regions of Andhra Pradesh
UNIT - V
13. Contingent crop planning for aberrant weather conditions in red and black soils.
14. Evapotranspiration – measures to reduce evapotranspiration – weeding, use of mulches, chemicals, windbreaks and shelterbelts
15. Land capability classification – alternate land use system

RAINFED AGRICULTURE 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. Mapping of dryland areas in India.
6. Interpretation of meteorological data for rainfall variability.
7. Scheduling of supplemental irrigation based on crop ET demand.
8. Critical analysis of rainfall and calculation of wet spells, dry spells, and length of growing season.
9. Calculation of effective rainfall.
10. Determination of moisture availability index.
11. Study of cultural practices for mitigating moisture stress (mulching, plant density, depth of sowing, thinning and leaf removal).
12. Visit to watershed.
13. Field demonstration on soil & moisture conservation measures.
14. Field demonstration of water harvesting structures.
15. Study of farm ponds as a source of supplemental irrigation.
16. Visit to rainfed research station.

References
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
II Year Semester – IV
RAIN FED AGRICULTURE AND WATER SHED MANAGEMENT
MODEL QUESTION PAPER

SECTION – A

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

1.
2.
3.
4.
5.
6.
7.
8.

SECTION – B

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

1. a) (OR)
   b)
2. a) (OR)
   b)
3. a) (OR)
   b)
4. a) (OR)
   b)
5. a) (OR)
   b)
UNIT-I- Introduction
Concept of Environmental chemistry - Scope and importance of environment in now a days – Nomenclature of environmental chemistry – Segments of environment - Natural resources – Renewable Resources – Solar and biomass energy and Non-renewable resources – Thermal power and atomic energy – Reactions of atmospheric oxygen and Hydological cycle.

UNIT-II- Air Pollution
Definition – Sources of air pollution – Classification of air pollution – Acid rain – Photochemical smog – Green house effect – Formation and depletion of ozone – Bhopal gas disaster – Controlling methods of air pollution.

UNIT-III- Water pollution

UNIT-IV- Chemical Toxicology

UNIT-V- Ecosystem and biodiversity

REFERENCE BOOKS
1. Fundamentals of Ecology by M.C.Dash
3. Environmental Chemistry by Samir K. Banerji
ENVIRONMENTAL CHEMISTRY (PRACTICAL)

1. Determination of carbonate and bicarbonate in water samples (acidity and alkalinity)

2. Determination of hardness of water using EDTA
   a) Permanent hardness
   b) Temporary hardness

3. Determination of Acidity

4. Determination of Alkalinity

5. Determination of chlorides in water samples
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
III Year Semester – V
ENVIRONMENTAL CHEMISTRY
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. 
2. 
3. 
4. 
5. 
6. 
7. 
8.

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. 
2. 
3. 
4. 
5.

*****
UNIT – I

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 – II


UNIT – III

Lipid metabolism – Biosynthesis of fatty acids in plastids – Functions of lipids Significance of lipids in plant metabolism.

UNIT – IV

Physiology of flowering – Photoperiodism and flowering – Importance of photoperiodism – Classification of plants based on photoperiodic responses
physiological roles – Commercial uses.
Senescence and abscission – Definition – Classification of senescence – 
Physiological and biochemical changes that occur during senescence - Prevention of leaf and flower senescence – Abscission and its relationship with senescence.

UNIT – V


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 nutrient deficiency symptoms in crops, Yield analysis

References


ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
III Year Semester – V
FUNDAMENTALS OF CROP PHYSIOLOGY
MODEL QUESTION PAPER

SECTION – A

Answer any FIVE questions. Each question carries equal marks. \((5\times5 = 25)\)

1
2
3
4
5
6
7
8

SECTION – B

Answer All the questions. Each question carries TEN marks \((5\times10 = 50)\)

1. a)  
   (OR)
   b)
2. a)  
   (OR)
   b)
3. a)  
   (OR)
   b)
4. a)  
   (OR)
   b)
5. a)  
   (OR)
   b)
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, cotton varieties and hybrids – Bt cotton

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 - Seed invigouration techniques - seed hardening - seed fortification - seed priming - Seed enhancement techniques - seed coating - seed pelleting.

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.
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
III Year Semester – V
PRINCIPLES OF SEED TECHNOLOGY
MODEL QUESTION PAPER

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

1.
2.
3.
4.
5.
6.
7.
8.

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

1. a) (OR)
   b)
2. a) (OR)
   b)
3. a) (OR)
   b)
4. a) (OR)
   b)
5. a) (OR)
   b)
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
III Year Semester – V
HORTICULTURE
(CREDITS 4+2=6)

UNIT-I
1. Horticulture – Definition - Divisions of horticulture with suitable examples.
2. Scope and importance of horticulture - Importance of horticulture in terms of income, employment generation, industry, religious, aesthetic, food & nutritive value and export.
3. Horticultural classification based on soil, climate and botanical classification.

UNIT-II
6. 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-III
8. 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.
9. 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.
10. Juvenility and flower bud differentiation – Methods for shortening juvenility - Application of growth regulators (Gibberellins, Auxins, cytokinins, Abscissic acid, Ethylene), environmental methods (photoperiod, temperature) - Cultivation techniques (grafting, pruning, girdling, irrigation, nutrition) - Bearing habits of fruit trees.
UNIT-IV

11. Unfruitfulness, factors (physiological, phylogenical, management, parasitical, climatological) pollination - Self and Cross pollination, pollinizers and pollinators
Fertilization and parthenocarpy – Types.


UNIT-V


15. Irrigation methods in horticulture crops - Different methods followed in horticultural crops (check basin, furrow, ring basin, basin, flood, pitcher, funnel, drip and sprinkler).

16. 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.
14. Preparation of potting mixture, potting and repotting.
15. Fertilizer application in different crops.
16. Visits to commercial nurseries/orchard.

References
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
III Year Semester – V
HORTICULTURE
MODEL QUESTION PAPER

SECTION – A

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

1.
2.
3.
4.
5.
6.
7.
8.

SECTION – B

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

1. a) \( \text{(OR)} \)
   b)
2. a) \( \text{(OR)} \)
   b)
3. a) \( \text{(OR)} \)
   b)
4. a) \( \text{(OR)} \)
   b)
5. a) \( \text{(OR)} \)
   b)
UNIT 1: Production Economics and Farm Management - Nature and Scope

UNIT 2: Factor – Product Relationship

UNIT 3: Factor – Factor Relationship

UNIT 4: Product – Product Relationship

UNIT 5: Farm Planning and Budgeting
INTRODUCTION TO AGRICULTURAL 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.
INTRODUCTION TO AGRICULTURAL ECONOMICS AND FARM MANAGEMENT
MODEL QUESTION PAPER

SECTION – A

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

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 

SECTION – B

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

1. a) 
   b) (OR)

2. a) 
   b) (OR)

3. a) 
   b) (OR)

4. a) 
   b) (OR)

5. a) 
   b) (OR)
1. Presentation of synopsis: 20 Marks
2. Desertation and evaluation: 50 Marks
3. Seminar: 20 Marks
4. Viva voice: 5 Marks
5. TOTAL MARKS: 100 Marks
UNIT - I
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- 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 - Physiological disorders - Disease and pest control and seed production.

Brinjal and Chilli - 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 - Disease and pest control and seed production.

UNIT - II
Okra and Leafy vegetables (Amaranthus and Gogu) - Botanical name – Family - Origin - area - Production - Improved varieties and cultivation practices such as time of sowing - Sowing - Planting distance - Fertilizer requirements - Irrigation

Weed management - Harvesting - Yield - Storage - Disease and pest control and seed production.

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 - Planting distance - Fertilizer requirements - Irrigation - Weed management - Harvesting - Yield - Storage - Physiological disorders - Disease and pest control and seed production.

Melons – Watermelon and Muskmelon - Botanical name – Family - Origin - Area - Production - Improved varieties and cultivation practices such as time of sowing
sowing - Planting distance - Fertilizer requirements - Irrigation - Weed management - Harvesting - Yield – Production of seedless watermelons - Storage

Physiological disorders - Disease and pest control and seed production.

UNIT - III
Cole crops- Cabbage and Cauliflower -Botanical name – Family - Origin - Area - production - Improved varieties and cultivation practices such as time of sowing

Planting distance - Fertilizer requirements - Irrigation - Weed management - Harvesting - Yield –Storage - Physiological disorders - Disease and pest control and seed production.

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 - Planting distance - Fertilizer requirements - Irrigation

Weed management - Harvesting - Yield –Storage - Physiological disorders - Disease and pest control and seed production.
Root crops (Carrot and Radish) - Botanical name – Family - Origin - Area - Production

Improved varieties and cultivation practices such as time of sowing - Sowing - Planting distance - Fertilizer requirements - Irrigation - Weed management - Harvesting - Yield - Storage - Physiological disorders (splitting, forking and cavity spot) - Disease and pest control and seed production.

UNIT - IV
Tapioca and Sweet potato - Botanical name – Family - Origin - Area - Production

Improved varieties and cultivation practices such as time of sowing - Sowing - Planting distance - Fertilizer requirements - Irrigation - Weed management - Harvesting - Yield - Storage - Physiological disorders - Disease and pest control and seed production.

Perennial vegetables – Drumstick and Curry Leaf- Botanical name – Family - Origin - Area - Production

Improved varieties and cultivation practices such as time of sowing - Sowing - Planting distance - Fertilizer requirements - Irrigation - Weed management - Harvesting - Yield - Storage - Physiological disorders - Disease and pest control and seed production.
Bulb crops – Onion and Garlic - Botanical name – Family - Origin - Area - Production

UNIT - V
Black pepper - Botanical name – Family - Origin - Introduction - Varieties - Climate- Soil – Systems of cultivation -Propagation - Planting - Shade regulation

Training and pruning - Fertilizer requirements - Irrigation - Intercultural operations - Harvesting – Processing - Yield - Pests and diseases.

Ginger and Turmeric – Botanical name – Family - Origin - Introduction - Varieties


Cinnamon - Coriander and Fenugreek - Botanical name – Family - Origin - Area - Production - Improved varieties and cultivation practices such as time of sowing

Transplanting techniques - Fertilizer requirements - Irrigation - Intercultural operations - Harvesting - Pests and Diseases.

PRODUCTION TECHNOLOGY FOR VEGETABLES AND SPICES (PRACTICAL)
1. Identification of vegetables and their seeds.
2. Identification of spices 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 spices.
7. Physiological disorders of vegetable crops.
8. Intercultural operations in vegetable crops.
10. Seed extraction methods in vegetables.
11. Seed extraction methods in spices.
12. Harvest indices and maturity standards of vegetable crops.
14. Economics of vegetables and spices cultivation.
15. Visit to vegetable farmer fields.
16. Visit to vegetable markets to study marketing problems.

References
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
III Year Semester – VI
PRODUCTION TECHNOLOGY FOR VEGETABLES AND SPICES
MODEL QUESTION PAPER

SECTION – A

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

1.  
2.  
3.  
4.  
5.  
6.  
7.  
8.  

SECTION – B

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

1. a)  
   \( (OR) \)
   b)  
2. a)  
   \( (OR) \)
   b)  
3. a)  
   \( (OR) \)
   b)  
4. a)  
   \( (OR) \)
   b)  
5. a)  
   \( (OR) \)
   b)
UNIT I

UNIT II

UNIT III
Apiculture - Bee species – comparison- castes of bees, bee behaviour and bee dance; Apiary management practices – bee pasturage, foraging, seasonal variations; Bee products, properties and uses; Effect of agricultural inputs on bee activity – pesticide poisoning; Lac insect- biology-strains-natural enemies of lac insect and lac products;

UNIT IV
Pests of vegetable crops – Distribution, bionomics, symptoms of damage and management strategies for insect, pest and integrated management of solanaceous, cucurbits, crucifers, root crops, leafy vegetables and bhendi

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

PESTS OF HORTICULTURAL CROPS & PRODUCTIVE ENTOMOLOGY (PRACTICAL)
preservation of leaves.
4. Identification of pests of mulberry and damage symptoms.
5. Identification of symptoms of diseases and nematodes of mulberry.
10. Integrated Farm System with Sericulture in Integrated Farming system – Mechanization in sericulture.
12. Apiculture - Bee species – comparison- castes of bees, bee behaviour and bee dance; Apiary management practices – bee pasturage, foraging, seasonal variations; Bee products – properties and uses; Effect of agricultural inputs on bee activity – pesticide poisoning;
13. Lac insect- biology-strains-natural enemies of lac insect and lac products;
ANDHRA UNIVERSITY  
B. Vocational course  
AGRICULTURE  
2020-21 Admitted Batch  
III Year Semester – VI  
PESTS OF HORTICULTURAL CROPS & PRODUCTIVE ENTOMOLOGY  
MODEL QUESTION PAPER  

SECTION – A

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

1
2
3
4
5
6
7
8

SECTION – B

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

1. a)  
   b)  
   (OR)
2. a)  
   b)  
   (OR)
3. a)  
   b)  
   (OR)
4. a)  
   b)  
   (OR)
5. a)  
   b)  
   (OR)

UNIT–I: Cereals  
   Rice, Wheat, Grain and fodder Maize, Grain and fodder Sorghum

UNIT – II: Millets  
   Pearl millet, Finger millet, Foxtail millet, Kodo millet, Little millet, Proso millet, Barn yard millet.

UNIT–III : Pulses  
   Red gram, Bengal gram, Green gram, Black gram, Soybean, lab – lab

UNIT – IV: Oilseeds  
   Groundnut, Sesame, Mustard, Sunflower and Safflower, Coconut, Oil palm

UNIT–V : Fibres and Sugars  
   Cotton, Jute, Mesta, Sugarcane, Sugar beet

**BREEDING OF FIELD CROPS (PRACTICAL)**


1. Rice, Wheat
2. Maize, Sorghum
3. Pearl Millet, Finger Millet, Little Millet
4. Kodo Millet, Barn Yard Millet, Proso Millet and Foxtail Millet.
5. Red gram Bengal Gram, Green Gram, Black Gram, Soybean, Lab – Lab.
7. Sunflower, Safflower.
8. Coconut And Oil palm
9. Cotton, Jute and Mesta
10. Sugarcane And Sugar Beet
SECTION – A

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

1
2
3
4
5
6
7
8

SECTION – B

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

1. a)  
   (OR)
   b)
2. a)  
   (OR)
   b)
3. a)  
   (OR)
   b)
4. a)  
   (OR)
   b)
5. a)  
   (OR)
   b)
UNIT - I

UNIT – II

UNIT – III
UNIT – IV

UNIT – V

References

PRODUCTION TECHNOLOGY FOR ORNAMENTAL CROPS MEDICINAL AND AROMATIC PLANTS (PRACTICAL)
1. Identification of ornamental plants.
2. Identification of Medicinal and Aromatic Plants.
3. Nursery bed preparation and flower seed sowing.
4. Training and pruning of roses.
5. Planning and layout of ornamental garden.
7. Protected structures – Care and maintenance.
8. Intercultural operations in flowers crops.
9. Intercultural operations in Medicinal and Aromatic plants.
10. Harvesting and post harvest handling of cut and loose flowers.
11. Floral preservatives to prolong vase-life of cut flowers.
13. Processing of Medicinal and Aromatic Plants.
15. Visit to commercial flower unit.
16. Visit to commercial MAP unit.
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
III Year Semester – VI
PRODUCTION TECHNOLOGY FOR ORNAMENTAL CROPS MEDICINAL AND
AROMATIC PLANTS
MODEL QUESTION PAPER

SECTION – A

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

1
2
3
4
5
6
7
8

SECTION – B

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

1. a) 

   (OR)

   b)

2. a) 

   (OR)

   b)

3. a) 

   (OR)

   b)

4. a) 

   (OR)

   b)

5. a) 

   (OR)

   b)
ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
III Year Semester – VI
PROJECT WORK-II
(CREDITS 0+4=4)

1. Presentation of synopsis: 20 Marks
2. Desertation and evaluation: 50 Marks
3. Seminar : 20 Marks
4. Viva voice : 5 Marks
5. TOTAL MARKS : 100 Marks