2ND YEAR	III SEM	1.	**English** (Language)	3+0=3
		2.	**Organic Chemistry** (General education)	3+0=3
		3.	**Health &Hygiene** (Life skills)	2+0=2
		4.	**Environmental Education** (Life skills)	2+0=2
		5.	**Disaster Management** (Skill development)	2+0=2
		6.	**Agronomy of Field Crops** (Core subject)	4+2=6
		7.	**Pests of Field Crops & their Management** (Core subject)	4+2=6
		8.	**Manures, Fertilizers & Soil Fertility Management** (Core subject)	4+2=6
				Total Credits 24+6=30

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 inEnglish
- Participate confidently in any socialinteraction
- Face any professionaldiscourse
- Demonstrate criticalthinking
- Enhance conversational skills by observing the professionalinterviews

I. UNIT

Speech : 1. TrystwithDestiny JawaharlalNehru
Skills : 2.Greetings
: 3. Introductions

II. UNIT

Speech : 1. Yes,WeCan Barack Obama
Interview : 2. A Leader Should Know How to ManageFailure
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. JRDTata'sInterview With T.N.Ninan
Skills : 2. DialogueBuilding
: 3. Giving Instructions/Directions

V. UNIT

Speech : 1. You've Got to Find WhatYouLove SteveJobs
Skills : 2.Debates
: 3. Descriptions
: 4. Role Play

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AGRICULTURE
2020-21 Admitted Batch
II Year – Semester III
ENGLISH -
3MODEL QUESTION PAPER

Max. Marks: 75 Time: 3 hrs

SECTION-A

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.

SECTIONB

Answeranythreequestions.Eachanswercarries10marks(Atleast 1 question should be given from eachUnit)

1.
2.
3.
4.
5.

*****

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B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
II Year – Semester III
ORGANIC CHEMISTRY
(CREDITS 3+0=3)

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, applicationto(a)acidityofphenol,and(b)acidityofcarboxylicacids.Hyperconjugationandits 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

Alkenes - Preparation of alkenes. Properties: Addition of hydrogen - heat of hydrogenation and stability of alkenes. Addition of halogen and its mechanism. Addition of HX,Markonikov's rule, additionofH2O,HOX,H2SO4withmechanismandadditionofHBrinthepresenceofperoxide (anti-Markonikov'saddition).Dienes-Typesofdienes,reactionsofconjugateddienes-1,2and 1,4 addition of HBr to 1,3 – butadiene and Diel's - Alderreaction.

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 ofhydrogenation, heat ofcombustionofBenzene,mentionofC-Cbondlengthsandorbitalpictureof 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 – Definitionofortho,paraandmetadirectinggroups.Ringactivatinganddeactivatinggroupswith 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 eachtype)

UNIT – IV

Halogen compounds

Nomenclatureandclassificationofalkyl(intoprimary,secondary,tertiary),aryl,arylalkyl,allyl, vinyl,benzylhalides.Nucleophilicaliphaticsubstitutionreaction-classificationintoSN^{1}andSN^2 – reaction mechanism with examples – Ethyl chloride, t-butyl chloride.

Hydroxy compounds

Nomenclature and classification of hydroxy compounds. Alcohols: Preparation with hydroboration reaction, Grignard synthesis of alcohols. Phenols: Preparation i) from diazonium salt,ii)fromarylsulphonates,iii)fromcumene.Specialreactionofphenols:Bromination,Kolbe-Schmidt reaction, Riemer-Tiemann reaction, Fries rearrangement, azocoupling, Pinacol-Pinacolonerearrangement.

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) $NaHSO_3$, b) HCN, c) RMgX, d) NH_2OH, e)$PhNHNH_2$, 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 $LiAlH_4$ and $NaBH_4$.

List of Reference Books

1. A Text Book of Organic Chemistry by B.S. Bahl and ArunBahl
2. A Text Book of Organic chemistry by Vol I by I.L. Finar VolI
3. Organic chemistry byBruice
4. Organic chemistry byClayden
5. A Text Book of Organic Chemistry by B.S. Bahl and ArunBahl

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 CHEMISTRYMODEL QUESTION PAPER

Max. Marks: 75 Time: 3 hrs

SECTION-A

Answer any five questions. Each answer carries 5 marks(At least 1 question should be given from each Unit) (5x5M=25Marks)

1. Explain different types of bong fissions in organic chemistry.
2. Explain 1,2 and 1,4 addition reactions of conjugated dienes.
3. Explain resonance in Benzene and also explain its reactivity.
4. Explain the mechanism for pinacol – pinacolone rearrangement.
5. Explain the preparation of alcohols by Grignard synthesis.
6. Explain the synthesis of aldehydes and ketones by using 1,3 dithianes.
7. Explain the mechanism of aldol condensation.
8. Explain the mechanism of benzoin condensation.

SECTIONB

Answerallquestions.Eachanswercarries10marks (5x10M = 50Marks)
(Atleast 1 question should be given from eachUnit)

1. (A) Explain the factors influencing the polarization of covalent bonds and its applications.
(OR)
(B) Explain the following reactions
(i) Hydroboration (ii)Michael addition (iii)Mannich reaction

2. (A) (i) Write the preparations of alkenes (ii) Explain Alkene addition reactions by Markonikov's rule with different examples. **(OR)**
(B) (i) Explain Bayer strain theory (ii) Draw confirmations of cyclohexane and explain their stability by drawing energy profile diagram.

3. (A) Define Hukel rule of aromatic compounds. What are benzenoid and Non-benzenoid aromatic compounds? Give examples. **(OR)**
(B) Explain the mechanism of nitration and Friedel-Craft's alkylation of Benzene.

4.(A) Give the mechanism of sterio chemistry of SN^1 and SN^2 reactions of alkyl halides with suitable examples**. (OR)**
(B) Explain the following reactions with mechanism. (i) Reimer – Tiemann reaction (ii) Fries rearrangement.

5.(A) Discuss the mechanism for following reactions (i) Parkin reaction (ii) Cannizaro reaction (**OR)**
(B) Discuss the mechanism of following reaactions (i) Bayer – Villiger oxidation reaction (ii) Wolf – Kishner reaction

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
II Year – Semester III

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
II Year – Semester III
HEALTH & HYGIENE
(CREDITS 2+0=2)

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

- What is a healthydiet
- How can we use available information to optimize ourdiet?
- Can nutrition be used for a healthylife?
- Is there a one-size-fits-all "good" diet or should we individualize our dietarygoals?
- Disastermanagementandresponsivenessofpublicinpandemicandepidemicdiseases
- Assess the impact of policies on health and hygiene Health measures to considerwhile travelling
- Awareness in public through digital media viz., mobileapps

UNIT I: Basics of Nutrition

- Nutrition – definition, importance, Good nutrition and mal nutrition; Balanced Diet:Basics of Meal Planning
- Carbohydrates –functions, dietary sources, effects ofdeficiency.
- Lipids –functions, dietary sources,effects ofdeficiency.
- Proteins –functions, dietary sources, effects ofdeficiency.
- Brief account of Vitamins- functions, food sources,effects ofdeficiency,
- Macroandmicrominerals–functions,effectsofdeficiency;foodsourcesofCalcium,Potassium and Sodium; food sources of Iron, Iodine andZinc
- Importance of water– functions, sources, requirement and effects ofdeficiency.

UNIT II: Health

- Health-Determinantsofhealth,KeyHealthIndicators,Environmenthealth&Publichealth; Health-Education: Principles and Strategies
- HealthPolicy&HealthOrganizations:HealthIndicatorsandNationalHealthPolicyofGovt.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
- National Health Mission: National Rural Health Mission (NRHM) Framework, National Urban Health Mission (NUHM) Framework
- Women & Child Health Care Schemes: Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCH+); Janani Shishu Suraksha Karyakaram (JSSK); Rashtriya Bal SwasthyaKaryakram(RBSK);IndiaNewbornActionPlan(INAP);AdolecentHeatlh-Rashtriya Kishor Swasthya Karyakram (RKSK)
- Disaster Management – Containment, Control and Prevention of Epidemics andPandemics – Acts, Guidelines and Role of Government andPublic

UNIT III: Hygiene

- Hygiene–Definition;Personal,Community,MedicalandCulinaryhygiene;WASH(**WA**ter, **S**anitation and **H**ygiene) programme
- Rural Community Health: Village health sanitation & Nutritional committee (Roles & Responsibilities); About Accredited Social Health Activist (ASHA); Village Health Nutrition Day, Rogi KalyanSamitis
- Community & Personal Hygiene: Environmental Sanitation and Sanitation in Publicplaces
- 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, Covid19AP

REFERENCES

1. **Bamji, M.S., K. Krishnaswamy &G.N.V. Brahmam (2009)** *Textbook of Human Nutrition(3rd edition*) Oxford and IBH Publishing Co. Pvt. Ltd., NewDelhi
2. **Swaminathan (1995)***Food & Nutrition*(Vol I, Second Edition) The Bangalore Printing &Publishing Co Ltd., ,Bangalore
3. **Vijaya Khader (2000)**Food, nutrition & health, Kalyan Publishers, NewDelhi
4. **Srilakshmi, B., (2010)***Food Science, (5th Edition)* New Age International Ltd., NewDelhi
5. Weblinks:https://nhm.gov.in/
   - National Rural Health Scheme:https://nhm.gov.in/index1.php?lang=1&level=1&sublinkid=969&lid=49
   - National Urban Health Scheme:https://nhm.gov.in/index1.php?lang=1&level=1&sublinkid=970&lid=137
   - Village health sanitation & Nutritional committeehttps://nhm.gov.in/index1.php?lang=1&level=1&sublinkid=149&lid=225
   - About Accredited Social Health Activist (ASHA)https://nhm.gov.in/index1.php?lang=1&level=1&sublinkid=150&lid=226
   - Village Health Nutrition Dayhttps://nhm.gov.in/index1.php?lang=1&level=1&sublinkid=152&lid=228
   - Rogi Kalyan Samitishttps://nhm.gov.in/index1.php?lang=1&level=1&sublinkid=153&lid=229
   - Health Impact Assessment - https://www.who.int/hia/about/faq/en/ (suggested information only) http://www.euro.who.int/ data/assets/pdf_file/0011/261929/Health-in- Impact-Assessments-final-version.pdf?ua=1
   - WASHhttps://www.unicef.org/ wash/and https://www.unicef.org/wash/files/UNICEF_Strategy_for_WASH_2016_2030.PDF
   - Healthy Livinghttps://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: 1 1/2 hrs (90 min.)**

SECTION – A

Answer any four questions. Each answer carries 5 marks. (4*5=20 Marks)

1. Write in detail about Micro & Macro minerals? Their functions & effect of mineral deficiency?
2. Write in detail about importance of water and its functions, sources of availability & effects of water deficiency?
3. Write in detail about control & prevention of epidemics and pandemics Acts & Guidelines?
4. Name different Nutritional & Health organizations and their functions?
5. Write in detail about Hygiene, personal, community, medical & culinary hygiene?
6. Write in detail about Arogya setu app & ASHA?
7. Write about National Health policy of Govt. of India – 2017?

SECTION – B (3*10=30 Marks)

Answer any three questions. Each answer carries 10 marks.

1. Define Nutrition, Importance of Nutrition, Balanced diet, basics of Meal planning & write about Mal nutrition?
2. Write in detail about functions, dietary sources, effects of deficiency of Carbohydrates and Proteins?
3. Write in detail about National Health Mission- National Rural Health Mission & National Urban Health Mission- framework?,
4. Write in detail about Janani Sishu Suraksha Karykaram- JSSK, Rashtriya Bal Swasthya Karyakaram- RBSK, India Newborn Action Plan – INAP?
5. Write in detail about Environmental Sanitation, Public awareness through Digital media, mobile apps of govt. of India?

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
II Year – Semester III
ENVIRONMENTAL EDUCATION
(CREDITS 2+0=2)

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 partofnature.
- Realize the importance of environment, the goods and services of a healthy biodiversity, dependence of humans onenvironment.
- Evaluate the ways and ill effects of destruction of environment, population explosion onecosystemsand global problems consequent to anthropogenicactivities.
- Discuss the laws/ acts made by government to prevent pollution, to protect biodiversity andenvironment as a whole.
- Acquaint with international agreements and national movements, and realize citizen's role inprotecting environment andnature.

UNIT I- Environment and Natural Resources

- Multidisciplinary nature of environmental education; scope andimportance.
- Man as an integral product and part of theNature.
- A brief account of land, forest and water resources in India and theirimportance.
- Biodiversity : Definition; importance of Biodiversity – ecological, consumptive,productive, social, ethical and moral, aesthetic, and optionvalue.
- Levels of Biodiversity: genetic, species and ecosystemdiversity.

UNIT-II- Environmental degradation and impacts

- Human population growth and its impacts on environment; land use change,landdegradation, soil erosion anddesertification.
- Use and over-exploitation of surface and ground water, construction of dams, floods,conflicts over water (withinIndia).
- Deforestation: Causes and effects due to expansion of agriculture, firewood, mining,forest fires and building of newhabitats.
- Non-renewable energy resources, their utilization andinfluences.
- A brief account of air, water, soil and noise pollutions; Biological, industrial and solidwastes in urban areas. Human health and economicrisks.
- Green house effect - global warming; ocean acidification, ozone layer depletion, acidrains 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 andpest control.

UNIT III- Conservation of Environment

- Concept of sustainability and sustainable development with judicious use of land, waterand 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 industrialwaste.
- Conservation of biodiversity: In-situ and ex-situ conservation ofbiodiversity.
- Environment Laws: Environment Protection Act; Act; Wildlife Protection Act; Forest ConservationAct.
- International agreements: Montreal and Kyoto protocols; Environmental movements:Bishnois of Rajasthan, Chipko, Silentvalley.

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/Agriculturalsite.
- Study of common plants, insects, birds and basic principles ofidentification.
- Study of simple ecosystems-forest, tank, pond, lake,mangrovesetc.
- Case study of a Forest ecosystem or a pondecosystem.

Suggested text book :

1. Erach Barucha (2004) *Text book of Environmental Studies for Undergraduate courses*(Prepared for University Grants Commmission) UniversitiesPress.
2. PurnimaSmarath (2018) *Environmental studies* Kalyani Publishers,Ludhiana

Reference books :

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

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
II Year – Semester III
ENVIRONMENTAL EDUCATIONMODEL QUESTION PAPER

Max. Marks: 50 Time: 1½ hrs (90 Minutes)

SECTION-A (4x5M=20Marks)

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

1.Explain different types of bio diversity.
2.What are the various water resourses? Explain in detail
3.Write about soil erosion.
4.Explain in detail about renewable and non renewable ressourses.
5.Write about deforestation.
6.What is green house effect?
7.Write about CHIPKO movement.
8.Explain the management of solid waste.

SECTIONB (3x10M= 30Marks)

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

1.What is meant by environment, scope and importance
2.India is mega diversity nation - discuss
3.Write a brief note on air, water, soil and noise pollutions.
4.What is the impact of human population on environment.
5.What do you mean by sustainable development and explain the components of sustainability.

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ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
II Year – Semester III
DISASTER MANAGEMENT

(CREDITS 2+0=2)

Learning Outcomes:

After successful completion of the course, the students are able to;

- Understand the nature, cause and effects ofdisasters
- Comprehend the importance of Disaster Management and the need ofawareness
- Acquire knowledge on disaster preparedness, recovery remedial measures andpersonalprecautions
- Volunteer in pre and post disaster management serviceactivities

UNIT-I-

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

UNIT-II-

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

UNIT-III -

Post disaster effects - short term - Procedures for Rehabilitation and Recovery - Role of volunteersandSafetyPrecautions-Longtermremedialandpreventivemeasures–Collection, filing and storage of information - Casestudies

Suggested co curriculum Activities:

1. Invite lectures by localexperts
2. Training on preparedness, post disasterservices
3. Analysis of Casestudies
4. Visit to a disaster management office andfacility
5. Assignments, Group discussion, quiz etc.

References:

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

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
II Year – Semester III
DISASTER MANAGEMENT
MODEL QUESTION PAPER

Max marks: 50 **Time: 1hr 30mts**

Section – A

Answer any four(4) questions. Each question carries 5 marks **4X5=20 marks**

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

Section – B

Answer any three(3) questions. Each question carries 10 marks3X10=30 marks

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

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
II Year – Semester III
AGRONOMY OF FIELD CROPS
(CREDITS 4+2=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

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

AGRONOMY OF FIELD CROPS (PRACTICAL)

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

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
II Year – SemesterIII
AGRONOMY OF FIELD CROPS
MODEL QUESTION PAPER

Time:3Hours Maximum: 75Marks

SECTION – A

Answer any **FIVE** questions. Each question carriesequalmarks. (5*5 =25)

1. Differentiate between Corchorus capsularis & CorchorousOlitorius.
2. Explain about Sorghumeffect.
3. Write about Refting process ofJute.
4. Write down the Nutritional values of Bajra &fingermillet
5. Classification of wheat with scientificnames
6. Write briefly about different types of nurseries practiced inRice.
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 inindia.

   (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 ofmillets.

   (OR)

   b) Write general package of practices of oilseeds.
4. a) Write about nutrient management of Rice, wheat &Maize.

   (OR)

   b) Write about nutrient management of Groundnut, Cotton & Sunflower.
5. a) Write Seed rate, souring, nutrient management, water Management, Weed Management, harvesting & yield ofgroundnut.

   (OR)

   b) Write seed rate, souring, nutrient Management, Water Management, Weed Management, harvesting & yield ofRice.

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
II Year – Semester III
PESTS OF FIELD CROPS AND THEIR MANAGEMENT
(CREDITS 4+2=6)

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 ofrice
2. Pests of maize,sorghum
3. Pests of wheat andragi
4. Pests of grams andcowpea
5. Pests of groundnut, gingelly andsunflower
6. Pests of castor, soybean, safflower andmustard
7. Pests ofcotton
8. Pests ofsugarcane
9. Pests of storedproducts
10. Gadgets for management of stored product insects.
11. Calculation on the doses and their applicationtechniques
12. Assessment of loses in stored grain pests, fumigation of grains stored ingodowns
13. Visit to nearest FCI/AWC/SWCgodown.

Reference Books

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

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: 75Marks

SECTION – A

Answer any **FIVE** questions. Each question carriesequalmarks. (5*5 = 25)

1. Write down symptoms and management for Brown Plant Hopper and Green Leaf Hopper ofpaddy.
2. Write down symptoms and management for Stem borer and Corn worm or ear worm ofmaize.
3. Write down symptoms and management for Red hairy caterpillar and leafhopper.
4. Write down symptoms and management for Leaf eating caterpillar and Diamond backmoth.
5. Write down symptoms and management for Root grub and Leaf miner ofgroundnut.
6. Write down symptoms and management for Pink bollworm and American boll worm ofcotton.
7. Write down symptoms and management for Sugarcane scales and sugarcanepyrilla
8. List out the Internal and External feeders with their scientific names of stored grainpest.

SECTION – B

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

9. a) Write down IPM practices ofPaddy.

(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 grainpest.

(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 forRodents

(OR)

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

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
II Year – Semester III
MANURES, FERTILIZERS AND SOIL FERTILITY MANAGEMENT
(CREDITS 4+2=6)

UNIT–I : Essential Nutrients Soil fertility and productivity-

Essential nutrients – functions, deficiency and toxicities.Concepts and methods of soil fertility evaluation.

UNIT–II : Nutrient Dynamics

Nutrients – sources, forms, mobility, transformations, fixation, losses and availability of nitrogen, phosphorus, potassium, calcium, magnesium, sulphur, iron, manganese, zinc, copper, boron, molybdenum, nickel, chloride in soils – Beneficial elements – Nutrient interactions.

UNIT–III : Classification of Fertilizers

Fertilizers – Definition and classification, sources, properties and reactions of primary, secondary and micro nutrient fertilizers in soil – Manufacture of urea, ammonium sulphate, SSP, DAP, MOP and SOP. Complex, mixed fertilizers, customized/Specialty fertilizers – Water soluble fertilizers, liquid fertilizers. Micro nutrient mixtures and chelated micronutrients – Preparation, characteristics and compatibility – Fertilizer Control Order (FCO). Manures – classification, nutrient content. Composting techniques.

UNIT–IV : Application Methods

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

UNIT–V : Nutrient Management

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

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

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

MANURES, FERTILIZERS AND SOIL FERTILITY MANAGEMENT (PRACTICAL)

1. Introduction to analytical instruments an principles-spectrometry and flamephotometry
2. Estimation of available N insoils
3. Estimation of available P insoils
4. Estimation of available K insoils
5. Estimation of available S insoils
6. Estimation of available Ca and Mg insoils
7. Estimation of available Zn in soils
8. Basic of plant analysis and estimation on N in plantsamples
9. Estimation of P in plantsamples
10. Estimation of K&S in plantsamples
11. Identification acid radicals in fertilizers /salts
12. Identification of basic radicals in fertilizers /salts
13. Estimation of N in Ammoniumsulphate
14. Estimation of N in Urea and FYM
15. Estimation of water soluble P2OsSSP
16. Estimation of K Muriate of potosh or Sulphate of potosh by using flame photometer.

ANDHRA UNIVERSITY
B. Vocational course
AGRICULTURE
2020-21 Admitted Batch
II Year Semester – III
MANURES, FERTILIZERS AND SOIL FERTILITY MANAGEMENTMODEL QUESTION PAPER

Time:3Hours Maximum: 75Marks

SECTION – A

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

1. What is soil fertility and soil productivity? Differentiate between them
2. Give an account on nutrient content of different fertilizers and manures
3. Write a note on Fertilizer Control Order
4. Write short note on different composting techniques
5. Briefly explain soil health and management
6. Give a detailed procedure on soil fertility evaluation
7. Write about concept of Integrated Nutrient Management
8. What are fertilizers and manures? Give a detailed differentiation of fertilizers and manures

SECTION – B

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

1. a) Write about different methods of fertilizer application
   (OR)
   b) Discuss nutrient use efficiencies of nutrients and enhancement techniques.
2. a) Write and explain detailed classification of fertilizers
   (OR)
   b) Give a detailed account on nutrient dynamics for micronutrients
3. a) Write an essay on essential nutrients
   (OR)
   b) Write an essay on specialty/ complex/ mixed fertilizers
4. a) Discuss different types of manures in detail
   (OR)
   b) Give an account on nutrient dynamics for macronutrients
5. a) Write about different nutrient management concepts and explain them
   (OR)
   b) Write about manufacturing process for Urea, DAP and MOP