# A.G& S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

## VUYYURU-521165, KRISHNA Dt., A.P.(Autonomous)

**Accredited by NAAC with "A" Grade**

**2020-2021**

## DEPARTMENT OF BOTANY

## MINUTES OF BOARD OF STUDIES

## ODD SEMESTER

**16-07-2020**

**Minutes of the meeting of Board of studies in Botany for the Autonomous courses of AG & SG Siddhartha Degree College of Arts & Science, Vuyyuru, held at 10:30 A.M on 16-07—2020 through Online.**

**Members Present:-**

| | | | |
|---|---|---|---|
| 1) | CH. Beulah Ranjani (CH. Beulah Ranjani) | **Chairman** | Head, Department of Botany, A.G & S.G.S Degree College of Arts & Science (Autonomous), Vuyyuru. |
| 2) | ..... (Dr. G.Ramesh) | **University Nominee** | Head, Department of Botany, K.B.N.College, Vijayawada. |
| 3) |  (Dr.A.Srinivasa Rao) | **Academic Council Nominee** | Lecturer in Botany, Govt.Degree College Mandapeta, East Godavari. |
| 4) | ..... (N.Manimala) | **Academic Council Nominee** | Head, Department of Botany, Govt.Degree College, Chintalapudi. |
| 5) | ..... (S.Krishna Suman) | **Industrialist** | Natural Farming, Yakamuru, Vuyyuru, Krishna Dt. |
| 6) | N. Ramana Rao (N.Ramana Rao) | **Member** | Adhoc Lecturer in Botany, A.G & S.G.S Degree College of Arts & Science (Autonomous), Vuyyuru. |
| 7) | E. Ganesh (E.Ganesh) | **Member** | Adhoc Lecturer in Botany, A.G & S.G.S Degree College of Arts & Science (Autonomous), Vuyyuru. |
| 8) | K. Anusha (K.Anusha) | **Student Representative** | Lecturer, Chaitanya College, Vuyyuru. |

**Agenda for B.O.S Meeting.**

1. To recommend the syllabi (Theory & Practical), Model question paper for I Semester of I B.Sc (B.Z.C), (A.B.C) for the academic year 2020 - 2021.

2. To recommend the syllabi (Theory & Practical), Model question paper for III Semester of II B.Sc (B.Z.C), (A.B.C) for the academic year 2020 - 2021.

3. To recommend the syllabi (Theory & Practical), Model question paper for V Semester of III B.Sc (B.Z.C), (A.B.C) for the academic year 2020 - 2021.

4. To recommend the syllabi (Theory & Practical), Model question paper and Blue print of I, III & V semester of I, II & III B.Sc (B.Z.C), (A.B.C.) for the academic year 2020 - 2021.

5. To recommend the syllabi of Competitive Botany as Unit- VI in I, III Semesters for the Academic year 2020 - 2021.

6. To recommend the teaching and evolution methods to be followed under Autonomous statues.

7. Any other matter.

C. B. Ranjeri
Chairman.

## RESOLUTIONS

1. It is resolved to continue changed syllabi (Theory & Practical), model question paper of I Semester of I B.Sc (B.Z.C), (A.B.C) under Choice Based Credit System (CBCS) for the academic Year 2020 – 2021.

2. It is resolved to continue the same syllabi (Theory & Practical), model question paper of III Semester of II B.Sc (B.Z.C), (A.B.C) under Choice Based Credit System (CBCS) for the academic Year 2020 – 2021.

3. It is resolved to continue the same syllabi (Theory & Practical), model question paper of V Semester of III B.Sc (B.Z.C), (A.B.C) under Choice Based Credit System (CBCS) for the academic Year 2020 – 2021.

4. It is resolved to follow the Model question paper and Blue print of I, III & V semester of I, II & III B.Sc (B.Z.C), (A.B.C.) for the academic year 2020-2021.

5. It is resolved to follow the syllabus of Competitive Botany as Unit- VI in I, III Semesters for the Academic year 2020-2021.Questions from the VI-Unit will be given in IA-1, IA-II but not in semester end exams.

6. It is resolved to continue the following teaching & evolution methods for the Academic year 2020 - 2021.

7. Any other matter.

**Teaching methods:**

Besides the conventional methods of teaching, we use modern technology i.e. Using of OHP and LCD projector to display on U boards etc; for better understanding of concepts.

**Evaluation of a student is done by the following procedure:**

- **Internal Assessment Examination:**
- Out of maximum 100 marks in each paper for I, II & III B.Sc (B.Z.C), (A.B.C) 30 marks shall be allocated for internal assessment.
- Out of these 30 marks, 20 marks are allocated for announced tests (i.e . IA-1& IA-2). Two announced tests will be conducted and average of these two tests shall be deemed as the marks obtained by the student, 5 marks are allocated on the basis of candidate's percentage of attendance and remaining 5 marks are allocated for the assignment for I, II & III B.Sc (B.Z.C), (A.B.C).

- **Semester – End Examination:**
- The maximum mark for I, III, V Bsc (B.Z.C), (A.B.C) semester – End examination shall be 70 marks and duration of the examination shall be 3 hours. Even though the candidate is absent for two IA exams/ obtain Zero marks the external marks are considered (if the candidate gets 40/70) and the result shall be declared as "PASS".
- Semester – End examination shall be conducted in theory papers at the end of every semester, while in practical papers, these examinations are conducted at the end of I, III & V semester for I, II & III B.Sc (B.Z.C), (A.B.C).

- Discussed and recommended for organizing Seminars, Guest lectures, Work – Shops to upgrade the Knowledge of students, for the approval of the Academic Council.

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**A.G & S.G. Siddhartha Degree College of Arts & Science**

An autonomous college in the jurisdiction of Krishna University

| BOTANY | BOT - 101C | w.e.f. 2020-21 | B. Sc. (BZC) |
|---|---|---|---|

**SEMESTER - I** **Fundamentals of Microbes and Non-vascular Plants** **PAPER – I**

**(Viruses, Bacteria, Fungi, Lichens, Algae and Bryophytes)**

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**Unit – 1: Origin of life and Viruses** **12Hrs.**

1. Origin of life, five kingdom classification of R.H. Whittaker
2. Discovery of microorganisms, Pasteur experiments, germ theory of diseases.
3. Shape and symmetry of viruses; structure of TMV and multiplication of TMV; A brief account of Prions and Viroids.
4. A general account on symptoms of plant diseases caused by Viruses. Transmission of plant viruses and their control.

**Unit – 2: Special groups of Bacteria and Eubacteria** **12Hrs.**

1. Brief account of Archaebacteria, Actinomycetes and Cyanobacteria.
2. Cell structure and nutritionof Eubacteria.
3. Reproduction- Asexual (Binary fission and endospores) and bacterial recombination (Conjugation, Transformation, Transduction).
4. Economic importance of Bacteria with reference to their role in Agriculture and industry (fermentation and medicine).
5. A general account on symptoms of plant diseases caused by Bacteria; Citrus canker.

**Unit – 3: Fungi & Lichens** **12 Hrs.**

1. General characteristics of fungi and Ainsworth classification (upto classes).
2. Structure, reproductionand life history of (a)*Rhizopus* (Zygomycota) and (b)*Puccinia* (Basidiomycota).
3. Economic uses of fungi in food industry, pharmacy and agriculture.
4. A general account on symptoms of plant diseases caused by Fungi; Blast of Rice.
5. Lichens- structure and reproduction; ecological and economic importance.

**Unit – 4: Algae** **12 Hrs.**

1. General characteristics of Algae (pigments, flagella and reserve food material); Fritsch classification. (upto classes).
2. Thallus organization and life cycles in Algae.
3. Occurrence, structure, reproduction and life cycle of (a) *Spirogyra* (Chlorophyceae) and (b) Oedogonoum (chlorophyceae) .
4. Economic importance of Algae.

**Unit – 5: Bryophytes** **12 Hrs.**

1. General characteristics of Bryophytes; classification upto classes.
2. Occurrence, morphology, anatomy, reproduction (developmental details are not needed) and life cycle of (a) *Marchantia* (Hepaticopsida) and (b) *Funaria* (Bryopsida).
3. General account on evolution of sporophytes in Bryophyta.

| BOTANY | BOT-301C | w.e.f. 2020-21 | B. Sc. (BZC) |
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II B. Sc - BOTANY

**SEMESTER - III** PAPER – III

Plant Taxonomy and Plant Physiology

Hours: 60 @ 4 hrs per week **Credits: 3**

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**UNIT – I: Introduction to Plant Taxonomy** **(12 hrs)**

1. Fundamental components of taxonomy (identification, nomenclature, classification types and phylogeny)
2. Salient features of Bentham & Hooker classification.
3. Role of chemotaxonomy, cytotaxonomy and Embryology in relation to Taxonomy.
4. APG IV System of Classification – 2016.

**UNIT –II: Systematic Taxonomy** **(12 hrs)**

1. Nomenclature and Taxonomic resources: An introduction to International Code of Botanical Nomenclature; Principles, Rules and Recommendations.
2. Systematic study and economic importance of plants belonging to the following families: Annonaceae, Capparidaceae, Rutaceae, Cucurbitaceae and Apiaceae

**UNIT –III: Systematic Taxonomy** **(12 hrs)**

1. Systematic study and economic importance of plants belonging to the following families: Asteraceae, Asclepiadaceae, Lamiaceae, Euphorbiaceae, Orchidaceae and Poaceae.

**Plant Physiology**

**UNIT – IV: Plant – Water relations** **(12 hrs)**

1. Importance of water to plant life, physical properties of water,
2. Diffusion, Imbibition and osmosis; water potential, osmotic potential and pressure potential.
3. Absorption, transport of water, ascent of sap.
4. Transpiration – types, stomata structure, movements and significance.

**UNIT –V: Mineral nutrition, Fertilizers and Enzymes** **(12 hrs)**

1. Mineral Nutrition**:** Essential macro and micro mineral nutrients and their role, mineral uptake (active and passive), deficiency symptoms.
2. Nitrogen cycle- biological nitrogen fixation.
3. Enzymes**:** Nomenclature, characteristics, mechanism and regulation of enzyme action, enzyme kinetics, factors regulating enzyme action.

**UNIT –VI (Competitive Syllabus)**

1. Definitions of Growth and Classification Based on Growth Habits.
2. Fruitarianism – Introduction, Varieties, Nutrition and Nutritional effects Vitamin B12
3. Biological Nitrogen Fixation.

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| BOTANY | BOT- 301C | w.e.f. 2020-21 | B. Sc. (BZC) |
|---|---|---|---|

**II B. Sc – BOTANY** **Model Question Paper** **SEMESTER- III**

PAPER-III: **Plant Taxonomy and Plant Physiology**

**Time: 3 Hours** **Max. Marks: 70**

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**SECTION-A**

Answer any **four** of the following questions. **4x5 = 20Marks**

(Draw diagrams wherever necessary)

1. Binomial nomenclature.
2. Cytotaxonomy.
3. Fruit in Rutaceae.
4. Pollination mechanism in Lamiaceae.
5. Water potential.
6. Types of Transpiration.
7. Imbibition.
8. Nitrogen.

**SECTION-B**

Answer any **five** of the following questions. **5x10 = 50Marks**

(Draw diagrams wherever necessary)

9. Explain in brief Bentham & Hookers system of classification. Discuss the merits and demerits of the system.
10. Describe vegetative and floral characters of the family Cucurbitaceae.
11. Write an essay on ICBN.
12. Describe vegetative & floral characters of Asclepiadaceae.
13. Describe floral characters and economic importance of Euphorbiaceae.
14. Write an essay on Ascent of sap.
15. Write an essay on the absorption of mineral ions.
16. Explain the enzyme action and add a note on the factors that effect enzyme activity.

**Guide lines for paper setter**: (for Paper III – BOT- 301) w.e.f 2020-21

1. In **section A**: Unit II, III & V must carry **one** question from each Unit, Unit I must carry

**two** questions and Unit IV must carry **three** questions.

2. In **section- B**: Set minimum **two** questions from Unit II, III & V. **One** question each from Unit I and Unit IV.
3. See the following table and Model paper for marks distribution.
4. Please provide the scheme of valuation for the paper.
5. Question paper should be both in English and Telugu media.

| Unit | Section - A | | Section - B | | Weightage in |
|---|---|---|---|---|---|
| | Questions | Marks | Questions | Marks | Marks |
| Unit – I | 2 | | 1 | | |
| | | 10 | | 10 | 20 |
| Unit - II | 1 | | 2 | | |
| | | 05 | | 20 | 25 |
| Unit – III | 1 | | 2 | | |
| | | 05 | | 20 | 25 |
| Unit – IV | 3 | | 1 | | |
| | | 15 | | 10 | 25 |
| Unit – V | 1 | | 2 | | |
| | | 05 | | 20 | 25 |
| Max. Q & marks | 8 (x 5) = 40 | | 8 (x 10) = 80 | | (Total questions =16) Total marks = 120 |
| Max. Q and marks for Valuation | Questions | Marks | Questions | Marks | Max. marks |
| | 4 (4 X 5M) = 20 M | | 5 (5 X 10M)= 50 M | | 70M |

**INTERNAL EXAMS - 30Marks**

(**20** marks for unit tests, **5** marks for seminar and remaining **5** marks for attendance).

**PAPER-III** **SEMESTER-III** **(BOT- 301P)**

**Practical – III:** **Plant Taxonomy and Plant Physiology**

**Total hours of laboratory Exercises 45 hrs @ 3 per week**

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**Suggested Laboratory Exercises:**

1. Systematic study of locally available plants belonging to the families prescribed in theory Syllabus.
2. Demonstration of herbarium techniques.
3. Osmosis – by potato osmoscope method.
4. Determination of osmotic potential of vacuolar sap by plasmolytic method using leaves of Rhoeo / Tradescantia.
5. Determination of rate of transpiration using cobalt chloride method.
6. Demonstration of transpiration by Ganong's potometer.
7. Demonstration of ascent of sap / Transpiration pull.
8. Study of mineral deficiency symptoms using plant material/photographs.
11. Field visits.
12. Preparation and submission of 25 herbarium specimens for evaluation during the practical Examination.

. **Plant Taxonomy and Plant Physiology**

Time: 3 Hrs Max. Marks: 50

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1. Describe specimen 'A' in technical terms. Draw neat labelled diagrams of twig with inflorescence, L.S of flower, T.S. of ovary, floral diagram and write the floral formula. 11M

2. Assign the Specimen 'B' to its family giving reasons. 3M

3. Write the salient features of experiment 'C' with the help of neat labelled diagram. 05M

4. Identify D &E. 03M

5. Herbarium. 03M

Total 25M

**Internal** :
(Attendance – 5 M + Record -10M + Field trip diary – 5M + Viva – 2M+Assignment-3M)

Total -----50M

**Scheme of valuation**

Time: 3 Hrs. **External Marks: 25**

1. Material 'A' - A twig with large sized flowers. (From the families mentioned in practical syllabus) Description of veg. parts = 2 M; Description of floral parts = 4 M; One mark each for the diagrams of Twig with flower, L.S. of flower, T.S of ovary, Floral diagram and Floral formula. = 11 M
2. Material 'B' – (Family name - 1, Identification with reasons - 2) = 03M
3. Material 'C' –Physiology –minor experiment (Salient features 3, Diagram 2M) = 05M
4. 'D' & 'E'(2 Herbarium sheets from students collection) = 03M
5. Herbarium. = 03 M

[for each one, Botanical name - 1, Family – ½]

**Internal** :
(Attendance – 5 M + Record -10M + Field trip diary – 5M + Viva – 2M+Assignment-3M)

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| BOTANY | BOT-501C | 2020-2021 | B.Sc. (BZC) |
|---|---|---|---|

**PAPER – V Cell Biology, Genetics and Plant Breeding SEMESTER-V** (2020-2021)
Total Hours of teaching 60 hrs @ 6 hrs for Week Credits: 03

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**UNIT-I Cell Biology** **(12 hrs)**

1. Cell, Ultra Structure and functions of cell wall.
2. Molecular Organization of cell membranes.
3. Chromosomes; morphology, organization of DNA in a chromosome (Nucleosome model)Euchromatin and Heterochromatin.

**UNIT-II Genetic Material** **(12 hrs)**

1. DNA as the Genetic Material: Griffith's and Avery's Transformation Experiment. Hershey - Chase Bacteriophage experiment.
2. DNA Structure (Watson & crick model) and replication of DNA (Semi Conservative).
3. Types of RNA (mRNA, tRNA, rRNA), their structure and function.

**UNIT-III Mendelian Inheritance** **(12 hrs)**

1. Mendelian Inheritance (Mono – Di-hybrid Crosses), Back cross and Text cross.
2. Linkage: concept, complete and In-complete Linkage, Coupling and Repulsion; Linkage Maps Based on Two and Three Point cross.
3. Crossing over concept and significance.

**UNIT-IV Gene Expression** **(12 hrs)**

1. Organization of gene, Transcription and Translation.
2. Mechanism and regulation of Gene Expression in Prokaryotes (Lac operon).
3. Mutations: Chromosomal Aberrations, Gene Mutations and Transposable Elements.

**UNIT-V Plant Breeding** **(12 hrs)**

1. Introduction and objectives of Plant Breeding.
2. Methods of Crop Improvement: Procedure, Advantages and limitations of Introduction, Selection and Hybridization (Out lines only).

**B.Sc – BOTANY**
**SEMESTER -V. THEORY MODEL PAPER**

**Time: 3 Hours** **Max. Marks: 70**

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## SECTION-A

**Answer any four of the following question** **4x5=20M.**
(Draw diagrams wherever necessary)

1. Nucleosome
2. Griffith experiment.
3. t RNA
4. Back cross and test cross.
5. Transcription.
6. Three point test cross.
7. Hybridization.
8. Crossing over.

## SECTION-B

**Answer all of the following questions.** **5x10= 50M.**
(Draw diagrams wherever necessary)

9. Describe the Ultra structure and functions of cell membrane.
10. What is cell theory? Write about eukaryotic cell components.
11. Write about structure and replication of DNA.
12. DNA as a genetic material proof with suitable experiments.
13. Explain the Mendel's law of inheritance.
14. Define linkage. Describe the different types of Linkage.
15. Write an essay on mechanism and Regulation of gene Expression in Prokaryotes.
16. Discuss about methods of Crop improvement.

**Guide lines for paper setter**: (for Paper V-BOT-501) W.e.f. 2020-21

1. In Section A: Unit I, III, V must carry one question from each unit. Unit II must carry 2 questions and Unit IV must carry three questions.

2. In section-B: Set minimum Two questions from Unit I, II & III

3. See the following table and Model paper.

4. Please provide the scheme of valuation for the paper.

5. Question paper should be both in English and Telugu media.

| Unit | Section - A | | Section - B | | Weightage in |
|---|---|---|---|---|---|
| | Questions | Marks | Questions | Marks | Marks |
| Unit – I | 1 | | 2 | | |
| | | 5 | 20 | | 25 |
| Unit – II | 2 | | 2 | | |
| | | 10 | 20 | | 30 |
| Unit –III | 1 | | 2 | | |
| | | 5 | | 20 | 25 |
| Unit-IV | 3 | | 1 | | |
| | | 15 | | 10 | 25 |
| Unit-V | 1 | | 1 | | |
| | | 5 | | 10 | 15 |
| Max .Q & marks | 8 | ( x 5) =40 | 8 | ( x 10) = 80 | (Total questions =16) Marks 120 |
| Max. Q and marks for Valuation | Questions | Marks | Questions | Marks | Max. marks |
| | 4 | | 5 | | |
| | | (4 x 5 ) = 20 | | (5 x 10 ) = 50 | 70 |

**INTERNAL EXAMS – 30 Marks**
**(20** marks for unit tests, **5** marks for Attendance **5** marks for seminars)

**III B.SC-BOTANY Practical paper**

**Cell Biology, Genetics and Plant Breeding**

**SEMESTER-V** **BOT-501-P**

**Time :3hr** Total hours of teaching 30hrs @ 2 hrs per week **Max.marks:50**

1. Study of the structure of cell organelles through photomicrographs.
2. Study of plant cell through temporary mounts.
3. Study of various stages of mitosis using cytological preparation of Onion root tips.
4. Study of DNA packing by micrographs.
5. Numerical problems solving Mendal's Laws of inheritance.
6. Chromosome mapping using 3 point test cross data.
7. Hybridization techniques –emasculation. Bagging (for demonstration only).
8. Field visit to a plant breeding research station.

**III B.SC-SEMESTER-V, BOTANY PRACTICAL MODELPAPER**

**PAPER –V: CELL BIOLOGY GENETICS AND PLANT BREEDING**

1. Perform the Experiment A Squash technique.....13M
2. Give the experimental protocol of the experiments. B.....04M
3. Solving numerical problems on Mendelian in heritance....C, D.....2x7 = 14M
4. Record.....05M

Viva.....04M

Internal Practical Exam.....10M

**III B.SC-BOTANY Syllabus SEMESTER-V**

**Practical paper – V: Cell Biology, Genetics and Plant Breeding**

**Total hours of teaching 30hrs @ 2 hrs per week**

1. Perform the Experiment A.

   Squash technique ……..5M

   Procedure……..……5M

   diagram ……3M = 13

2. Give the experimental protocol of the experiments. B……...4M

3. Genetic problem C, D

   Salvation of problem…….5 M

   Reasoning……..2 M

   2X7 = 14M

   Viva ……4M

**Internal:**

a) Record…….5M.

b)Internal Practical Exam……...10M

**Books for Reference:**


1. Old, R.W. and Primrose S.B. 1994, Principles of Gene Manipulation Blackwell Science,19 London 2. Grierson, D. and Convey S.N. 1989, Plant Molecular Biology, Blackie Publishers, NewYork.

2. Lea, P.J. and Leegood R.C. 1999, Plant Biochemistry and Molecular Biology, John Wiley and Sons, London.

3. Power C.B., 1984, Cell Biology, Himalaya Publishing Co. Mumbai

4. De. Robertis and De Robertis, 1998, Cell and Moleceular Biology, K.M. Verghese andCompany .


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| BOTANY | BOT-502 | 2020-2021 | B.Sc. (BZC) |
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**SEMESTER-V (2020-2021)** **PAPER – VI**

**PLANT ECOLOGY & PHYTOGEOGRAPHY** Credits-03

Total Hours of teaching 60 hrs @ 6 hrs for Week

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**UNIT-I.ELEMENTS OF ECOLOGY** **(12 hrs)**

1. Ecology: Definition, branches and significance of ecology.

2. Claimatic factors: Light, Temperature.

3. Edaphic factor: Origin, formation, composition and soil profile.

4. Biotic factor, Ecological adaptations of Plants.

**Unit– II. Ecosystem Ecology** **(12 hrs)**

1. Ecosystem: concept and components, energy flow, food chain, food web, Ecological Pyramids.
2. Productivity of ecosystem-Primary, Secondary and Net productivity.
3. Biogeochemical cycles- Carbon, Nitrogen and Phosphorous.

**Unit –III Population & Community ecology.** **(12 hrs)**

1. Population-defination, characteristics and importance (Density,Natality, Mortality, Growth Curves) outlines-ecotypes.
2. Plant communities- characters of a community, outlines – Frequency, density, cover, life forms, Biological Spectrum.
3. Ecological Succession: Hydrosere and Xerosere

**Unit-IV Phytogeography** **(12 hrs)**

1. Principles of Phytogeography, Distribution (Wides, Endemic, Discontinous species.

2. Phytogeographic regions of India.

3. Endemism – types and Causes.

**Unit-V Plant Biodiversity and its Importance** **(12 hrs)**

1. Definition, Levels of Biodiversity – genetic, species and ecosystem.

2. Biodiversity and Hot-spots of India: North Eastern, Himalayas and Western Ghats.

3. Loss of Biodiversity-causes and Conservation (In-situ and Ex-Situ Methods).

## B.Sc – BOTANY

## SEMESTER –VI THEORY MODEL PAPER

**PLANT ECOLOGY & PHYTOGEOGRAPHY**

**Time: 3 Hours** **Max. Marks: 70**

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## SECTION-A

**Answer any four of the following question.** **4x5=20M.**

(Draw diagrams wherever necessary)

1. Soil profile.
2. Biotic factor.
3. Food web.
4. Energy Flow in Ecosystem.
5. Natality.
6. Biological Spectrum
7. Endemism.
8. Red-Data book.

## SECTION-B

**Answer any Five of the following questions.** **5x10=50M.**

(Draw diagrams wherever necessary)

9. Discusses the importance of Temperature Factor on Plant Growth.
10. Briefly Discuss the Ecological Adaptations of Xerophytes.
11. What are Ecological Pyramids? Describe the Pyramids of numbers, BioMass and Energy.
12. What are biogeochemical cycles? Give an account of Nitrogen cycle?
13. What is Plant Succession? Describe Hydrosere?
14. What are the Characters of Plant Communities.
15. What are Principles of Plant Phytogeography.
16. What is Biodiversity? Explain the Levels of Biodiversity.

**Guide lines for paper setter**: (for Paper V-BOT-501) W.e.f. 2020-21

1. In Section A: Unit I, II, III, must carry Two question from each unit. Unit IV, V must carry

one question.

2.In section-B: Set minimum two questions from Unit I, II & III and Set One Question from IV, V.

3. See the following table and Model paper.

4. Please provide the scheme of valuation for the paper.

5. Question paper should be both in English and Telugu media.

| Unit | Section – A | | Section - B | | Weightage in |
|---|---|---|---|---|---|
| | Questions | Marks | Questions | Marks | Marks |
| Unit – I | 2 | | 2 | | |
| | | 10 | | 20 | 30 |
| Unit – II | 2 | | 2 | | |
| | | 10 | | 20 | 30 |
| Unit – III | 2 | | 2 | | |
| | | 10 | | 20 | 30 |
| Unit-IV | 1 | | 1 | | |
| | | 5 | | 10 | 15 |
| Unit-V | 1 | | 1 | | |
| | | 5 | | 10 | 15 |
| Max. Q & marks | 8 | ( x 5) = 40 | 8 | ( x 10) = 80 | (Total questions = 16) Marks 120 |
| Max. Q and marks for Valuation | Questions | Marks | Questions | Marks | Max. marks |
| | 4 | | 5 | | |
| | (4 x 5 ) = 20 | | (5 x 10 ) = 50 | | 70 |

INTERNAL EXAMS - 30Marks

(20 mark for unit tests, 5 marks for assignments and remaining 5 marks for seminar etc.)

BOTANY PRACTICAL

**PLANT ECOLOGY& PHYTOGEOGRAPHY**

SEMESTER- V BOT-502-P

Total hours of teaching 30 hrs @ 3 hrs per week

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1. Study of instruments used to measure microclimatic variables; soil thermometer, maximum and minimum thermometer, anemometer, psychomotor, rain gauze, and lux meter.

2. Permeability (percolation; total capacity as well as rate of movement) of different soil samples.

3. Determination of soil pH

4. Study of morphological and anatomical adaptations of hydrophytes and xerophytes. (4each)

5. Determination of minimal quadrate size for the study of herbaceous vegetation in the college campus by species area curve method.

6. Study of Phytoplankton and macrophysics from water bodies.

7. Study of species diversity index of vegetation.

8. Estimation of Primary Productivity of an ecosystem.

9. To study field vegetation with respect to stratification, canopy cover and composition.

10. Study of plants included in agro forestry and social forestry.

11. To locate the hotspots, phyto geographical regions and distribution of endemic plants in the map of India.

12. The following practical should be conducted in the Field/lab with the help of Photographs, herbarium, Floras, Red data book- Study of endangered plants species, critically endangered plants species, vulnerable plant species and monotypic endemic genera of India.

BOTANY PRACTICAL

**PLANT ECOLOGY& PHYTOGEOGRAPHY**

SEMESTER- V BOT-502-P

Total hours of teaching 30 hrs @ 3 hrs per week

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1. Study Project under supervision.....12 Marks
2. Experiment **A** ..... 07Marks
3. Anatomical adaptations of **B** (Section cutting)..... 07Marks
4. Spotters **C&D** .....(2x2 1/2) = 5 Marks
5. Record.....05Marks
6. Viva-Voc.....04Mrks
7. Internal practical exam.....10Marks

**Total = 50 Marks**

BOTANY PRACTICAL

**PLANT ECOLOGY& PHYTOGEOGRAPHY**

SEMESTER- V BOT-502-P

Scheme of Valuation

1. Study Project under supervision
   To study Honey Bees and Plants Yielding Honey ..... 12 Marks

2. Experiment **A** -determination of soil porosity/PH..... 07Marks

3. Anatomical adaptations of **B** (Section cutting)
   Xerophytes / Hydrophytes .....07Marks

4. Spotters **C&D** anemometer/rain gauze/lux meter ..... (2x2 1/2) = 5 Marks

5. Viva-Voc.....04Mrks

6. Record.....05Marks

7. Internal practical exam.....10Marks

**Total = 50 Marks**