

# VIDHYADEEP UNIVERSITY

## B.Sc. BOTANY

### Teaching & Evaluation Scheme

#### Semester – I & II

Course name: Bachelor of Science (Botany)			Semester I						
Grade System:									
Subject			Teaching Scheme		Examination Scheme		Passing Scheme		Total Marks
Subject Code	Paper No.	Paper Title	Hours/week	Credit	Theory		Passing Head		
			Theory	Theory	Internal	External	Internal	External	
1102101	BOT 101	Botany Paper - I	2	2	20	50	9	17	70
1102102	BOT 102	Botany Paper - II	2	2	20	50	9	17	70
1102103	BOTP 103	Practicals	4	2	20	40	9	14	60

Course name: Bachelor of Science (Botany)			Semester II						
Grade System:									
Subject			Teaching Scheme		Examination Scheme		Passing Scheme		Total Marks
Subject code	Paper No.	Paper Title	Hours/week	Credit	Theory		Passing Head		
			Theory	Theory	Internal	External	Internal	External	
1102201	BOT 201	Botany Paper - III	2	2	20	50	9	17	70
1102202	BOT 202	Botany Paper - IV	2	2	20	50	9	17	70
1102203	BOTP 203	Practicals	4	2	20	40	9	14	60

# Vidhyadeep University

## B.Sc. Botany

Botany is a scientific study of plants. It includes the study of their structure, how they grow, how they can be effectively classified, the things that impact their development etc.

Botany is the branch of biology, which is study of all living organism.

### Programme Outcomes

#### Knowledge outcomes:

After completing B.Sc Botany, students will be able to:

<b>PO1:</b> identify cryptogammic plants;
<b>PO2:</b> apply the knowledge of nursery management for propagation of economically important plants;
<b>PO3:</b> cultivate some basic food crops;
<b>PO4:</b> identify and utilize some basic medicinal plants;
<b>PO5:</b> identify and control plant diseases;
<b>PO6:</b> identify and control weed plants;
<b>PO7:</b> identify phanerogamic plants.

#### Skill outcomes:

After completing B.Sc Botany, students will be able to:

<b>PO8:</b> collaborate effectively on team-oriented projects in the field of life sciences;
<b>PO9:</b> communicate scientific information in a clear and concise manner, both orally and in writing;
<b>PO10:</b> explain biodiversity, climate change and plant pathology;
<b>PO11:</b> apply Physiology, Ecology and Plant breeding techniques in plant sciences;
<b>PO12:</b> apply knowledge of medicinal and economic Botany in day life;
<b>PO13:</b> apply the knowledge to develop the sustainable and eco-friendly technology in Industrial Botany.

## Generic outcomes:

After completing B.Sc. Botany, students will be able to:

**PO14:** have developed their critical reasoning, judgment and communication skills;

**PO15:** apply their knowledge about cytology;

**PO16:** enhance the scientific temper among the students so that they may participate in different competition at local and national level.

## Program specific outcomes

**PSO1:** students get acquainted with techniques which are used in industrially important plant products;

**PSO2:** students get conceptual knowledge of entrepreneurships in mushroom cultivation, bio-fertilizers and bio-pesticides Production, fermentation, etc

**PSO3:** Understand the diversity of the plants and structural organization of plants like monocots and dicot.

**PSO4:** Understand plant structure in the context of physiological and biochemical functions of plants.

## Mapping between PO and PSO

	PSO1	PSO2	PSO3	PSO4
P01			√	√
P02	√	√		
P03		√		
P04	√		√	
P05	√	√	√	
P06		√	√	√
P07			√	
P08	√			
P09	√		√	
P010		√	√	
P011	√	√		√
P012	√	√		
P013	√	√		
P014	√	√	√	√
P015			√	√
P016	√	√	√	√

## Course outcomes

### F.Y.B.Sc SEM 1

#### **COURSE 101: Plant Diversity**

After successfully completing this course, students will be able to:

<b>CO1:</b> outline the Eichler classification system;
<b>CO2:</b> position the plants in five kingdom system;
<b>CO3:</b> describe prokaryotic and Eukaryotic cell structure;
<b>CO4:</b> classify the members of plants groups in to cryptogams and phanerogams;
<b>CO5:</b> descibe of root nodule by rhizobium bacteria
<b>CO6:</b> describe the general characters, structure and importance of Bacteria,
<b>CO7:</b> describe the general characters, structure and importance of virus;
<b>CO8:</b> describe Nostoc and spirogyra and their characters;
<b>CO9:</b> describe mucor and agaricus and their characters;
<b>CO10:</b> describe characters and importance of lichen.

#### Mapping between CO and PSO for a course of BOT 101

	PSO1	PSO2	PSO3	PSO4
<b>CO1</b>			√	
<b>CO2</b>			√	
<b>CO3</b>			√	√
<b>CO4</b>	√		√	√
<b>CO5</b>	√		√	√
<b>CO6</b>	√		√	√
<b>CO7</b>			√	√
<b>CO8</b>	√	√	√	√
<b>CO9</b>	√	√	√	√
<b>CO10</b>	√	√	√	√

## **COURSE 102: Plant Diversity, Nursery management and utilization**

After successfully completing this course, students will be able to:

<b>CO1:</b> describe Funaria and its characters;
<b>CO2:</b> describe Nephrolepis and its characters;
<b>CO3:</b> practice cutting, layering, budding and grafting;
<b>CO4:</b> describe the importance of fertilizers and pesticides;
<b>CO5:</b> describe the importance of methods of irrigation;
<b>CO6:</b> describe the morphology of root, stem, leaves and flowers;
<b>CO7:</b> describe the cultivation of sugarcane, paddy, mango And Brinjal.

### Mapping between CO and PSO for a course of BOT 102

	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>
<b>CO1</b>			√	√
<b>CO2</b>			√	√
<b>CO3</b>	√	√	√	
<b>CO4</b>	√	√		
<b>CO5</b>	√		√	
<b>CO6</b>			√	
<b>CO7</b>	√		√	

### **Course: Botany practical (103)**

After successfully completing this course, students will be able to:

<b>CO1 :</b> examine the growth of bacteria in curd under microscope;
<b>CO2 :</b> identify the thallus structure in Nostoc and Spirogyra;
<b>CO3 :</b> identify Mucor and Agaricus;
<b>CO4 :</b> identify the Lichen Usnea;
<b>CO5 :</b> identify Funaria and Nephrolepis;

**CO6** : demonstrate the methods of vegetative propagation;

**CO7**: illustrate the root, stem, leaves, flowers and its types.

### Mapping between CO and PSO for a course of BOT 103

	PSO1	PSO2	PSO3	PSO4
CO1	√	√	√	
CO2		√	√	
CO3		√	√	
CO4	√		√	
CO5			√	√
CO6	√	√		
CO7			√	

### F.Y.B.Sc SEM 2

#### **Course 201: Physiology, Ecology and Anatomy of Plants, medicinal plants and plant pathology:**

After successfully completing this course, students will be able to:

**CO1**: describe imbibitions, osmosis and plant movement;

**CO2**: describe Light and Dark reaction;

**CO3**: describe c3 and c4 cycle;

**CO4**: describe the ecological adaptation, morphology and anatomy of Hydrophytes, Mesophytes and Xerophytes;

**CO5**: describe this tissue system and vascular bundle in plants;

**CO6**: Describe the types of stele;

**CO7**: Describe the Ergastic matter;

**CO8**: Describe the medicinal plants;

**CO9**: Describe the plant Pathology.

## Mapping between CO and PSO for a course of BOT 201

	PS01	PS02	PS03	PS04
C01	√	√		√
C02	√			√
C03	√			√
C04			√	
C05			√	
C06				√
C07				√
C08			√	
C09	√	√		

## Course 202: Plants Diversity and Weed management:

After successfully completing this course, students will be able to:

<b>C01:</b> describe weed management;
<b>C02:</b> describe Cycas and its characters;
<b>C03:</b> describe the types of phyllotaxy and aestivation;
<b>C04:</b> describe the types of Inflorescence and placentation;
<b>C05:</b> describe some angiosperm families;
<b>C06:</b> describe the methods of in-situ and ex-situ conservation;
<b>C07:</b> describe botanical garden;
<b>C08:</b> describe the importance of forest and their conservation.

## Mapping between CO and PSO For a course of BOT 202

	PS01	PS02	PS03	PS04
C01	√	√	√	
C02	√		√	√
C03			√	
C04			√	
C05	√		√	
C06			√	
C07			√	
C08	√	√	√	√

## Course: Botany Practical 203

After successfully completing this course, students will be able to:

<b>CO1:</b> demonstrate the plant physiological experiments;
<b>CO2:</b> identify and categorize hydrophytes, mesophytes and xerophytes;
<b>CO3:</b> identify different types of tissue;
<b>CO4:</b> identify different types of stele;
<b>CO5:</b> identify different types of vascular bundle;
<b>CO6:</b> identify and prepare slide of different types of Ergastic matter;
<b>CO7:</b> identify different medicinal plants;
<b>CO8:</b> diagnosis of different diseases in plants;
<b>CO9:</b> Identify weed plants;
<b>CO10:</b> Identify and prepare the slides of cycas ;
<b>CO11:</b> Identify the morphological characters of plants:
<b>CO12:</b> Identify the morphological characters and floral dissection of some angiosperm families.

## Mapping between CO and PSO for a course of BOT 203

	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>	<b>PSO4</b>
<b>CO1</b>	√	√		√
<b>CO2</b>	√		√	√
<b>CO3</b>			√	√
<b>CO4</b>			√	√
<b>CO5</b>			√	√
<b>CO6</b>	√		√	√
<b>CO7</b>	√	√	√	√
<b>CO8</b>	√	√		
<b>CO9</b>	√	√	√	
<b>CO10</b>	√	√	√	√
<b>CO11</b>	√		√	√
<b>CO12</b>	√		√	√



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**F.Y. B.SC. SEM-1 & SEM - 2 SYLLABUSES**

**BOTANY PAPER 101: Plant diversity**

➤ <b>UNIT-1 DIVERSITY OF PLANT</b>
INTRODUCATION OF PLANT DIVERSITY
CONCEPT OF PLANT KINGDOM (EICHLER SYSTEM)
CRYPTOGAMS AND PHANEROGAMS DIVERSITY IN PLANT KINGDOME
POSITION IN FIVE KINGDOME SYSTEM
PROKARYOTIC CELL AND EUKARYOTIC CELL
PROKARYPTIC CELL AND EUKARYOTIC CELL STRUCTURE AND FUNCTION OF CELL ORGANELLES.
➤ <b>UNIT-2 VIRUS AND BACTERIA</b>
VIRUS DISCOVERY, PHYSIOCHEMICAL, BIOLOGICAL CHARACTERSTICS, GENERAL CHARACTERSTICS, STRUCTURE, IMPORTANCES
BACTERIA DISCOVERY ,BACTERIA STRUCTURE, TYPES OF BACTERIA
GRAM NEGATIVE AND GRAM POSITIVE STAIN METHOD
STUDY OF ROOT NODULES BY RHIZOBIUM BACTERIA.
BACTERIA IMPORTANCES
ARCHAEBACTERIA AND EUBACTERIA ,GENERAL CHARACTERS
➤ <b>UNIT-3 FUNGI</b>
GENERAL CHARACTERSTICS, THALLUS STRUCTURE (INTERNAL) AND TYPES OF REPRODUCCATION
(1) AGARICUS (2) MUCOR
➤ <b>UNIT-4 ALGAE</b>
OCCURENCES AND RANGE OF THALLUS ORGANIZATION, CHARACTERSTIC FEATURES, CELL STRUCTURE ANE TYPES OF REPRODATION.
(1)NOSTOC (2) SPIROGYRA
ECONOMIC IMPORTANCES OF ALGAE.
➤ <b>UNIT-5 LICNEN</b> DEFINATION OF LICNEN, CLASSIFICATION, GENERAL CHARACTERS, EXTERENAL AND INTERNAL CHARACTERS, REPRODUCCATION AND ECONOMIC IMPORTANCES OF LICHEN.

## **BOTANY PAPER 102: Plant diversity, weed mangement,**

### **Major crops**

➤ <b>UNIT-1 BRYOPHYTES</b>
OCCURENCE AND RANGE OF THALLUS ORGANIZATION, CHARACTERSTICS FEATURES, REPRODUCTION LIFE CYCLES
FUNARIA
➤ <b>UNIT-2 PTERIDOPHYTES</b>
STUDY OF LIFE CYCLE, SPOROPHYTES, GAMETOPHYTES AND REPRODUCTION OF NEPHROLEPIS. (EXTERNAL AND INTERNAL STUCTURES)
➤ <b>UNIT-3 NURSERY MANGEMENT</b>
INTRODUCATION
TYPES OF NURSERIES AND LANDSCAPING.
PLANT PROPAGATION METHOD -CUTTING, BUDDING, GRAFTING AND LAYERING.
FERTILIZER AND PESTICIDES
METHOD OF IRRINGATION DRIP AND SPRINKLER
➤ <b>UNIT-4 PLANT MARPHOLOGY</b>
<b>ROOT:DETINATION</b>
CHARACTERS OF ROOT
PART OF ROOT
TYPES OF ROOT
FUNCTIONS AND MODIFICATION OF ROOT
<b>STEM: DEFINATION</b>
CHARATERS OF STEM
SHAPE AND SURFACE,
TYPES OF STEM, FUNCTION & MODIFICATION OF STEM
<b>LEAF: DEFINATION</b>
CHARACTERS & PARTS OF LEAF
TYPES OF STIPULES, VENATION, TYPES OF LEAF
FUNCTION AND MODIFICATION OF LEAF
<b>FLOWER: DEFINATION</b>
STRUCTURE OF TYPICAL FLOWER
ARRANGEMENT OF FLORAL LEAF
TYPES OF FLOWER
➤ <b>UNIT: 5 MAJOR CROPS</b>
CULTIVATIONS OF THE FOLLOWING CROPS IN RELATION TO THEIR ORIGIN DISTRUBUTION CLIMATE, SOIL, PROPAGATION, METHOD OF CULTIVATIONS AND USES.

1. SUGARCANE 2.PADAY 3.MANGO 4.BRINJAL.

### **BOTANY 103: BOTANY PRACTICAL**

➤ <b>PRACTICAL-1</b> TO SYUDY MICROSCOPIC EXAMINATION OF CURD.
PARMANENT SLIDE OF BACTERIA (SPIRO BACTERIA, VIBRYO BACTERIA, GRAM POSSITIVE AND GRAM NEGATIVE BACTERIA, E.COIL BACTERIA)
CHART /SPECIMEN OF DIFFERENT TYPES OF VIRUS.
➤ <b>PRACTICAL-2</b> NOSTOC
TO STUDY THALLUS AND AKINETS IN NOSTOC
➤ <b>PRACTICAL-3</b> SPIROGYRA
TO STUDY THALLUS STRUCTURE, REPRUDUCATION IN SPIROGYRA.
(PERMANENT SLIDE OF THALLUS. W.M SCALARIFORM CONJUGATION, LATERAL CONJUGATION)
➤ <b>PRACTICAL-4</b> AGARICUS
TO STUDY THE VEGETATIVE STRUCTURE, BASIDIOCARP, GILLS, BASIDIA, BASIDIOSPORE, PARMANENT SLIDE OF AGARICUS STIPE T.S., PILEUS T.S.
➤ <b>PRACTICAL-5</b> MUCOR
TO STUDY THE THALLUS STRUCTURE AND REPRDUTIVE STRUCTURE
PARMANENT SLIDE OF MUCOR VEGETALIVE,
VEGETATIVE W.M. MUCOR SPORANGIA, MUCOR ZYGOSPORE
.
➤ <b>PRACTICAL-6</b> LICHEN
TO STUDY EXTERNAL FEATURES AND INTERNAL STRUCTURE OF USNEA (PERMANENT SLIDE OF LICHEN THALLUS, T.S. LICHEN SORIDIA)
➤ <b>PRACTICAL-7</b> MOSS FUNARIA
TO STUDY THE EXTERNAL FEATURE OF GAMETOPHYTE AND SPOROPHYTES. (PERMANENT SLIDE OF FUNARIA ANTHERIA W.M., FUNARIA ARCHIGONIA W.M.)
➤ <b>PRACTICAL-8</b> NEPHROLEPIS
PREPARATION OF SLIDES FROM THE FRESH MATERIAL OF T.S. OF STOLON & T.S. OF RACHIS BY THE STUDENTS. (PERMANENT SLIDES: T.S. OF STOLON, T.S. OF RACHIS, T.S. FEAFLET PASSING THROUGH SORI, NEPHROLEPIS PROTHALLUS, FERN SORI W.M. PROTHALLUS WITH ANTHERADIA PROTHALLUS WITH ARCHIGONIA, PROTHALLUS WITH SPOROPHYTES.
➤ <b>PRACTICAL-9</b> NURSERY MANGAMENT
<b>(1)</b> STUDY OF METHOD OF PRAPAGATION WITH THE HELP OF SUITABLE MATERIALS TUBERS, BULBS, RHIZOMS, CORMS, SUCKERS AND RUNNERS.
<b>(2)</b> PROPAGATIONS OF HORTICULTURAL PLANTS BY STEM CUTTING, AIR LAYERING, GRATTING AND T BUDDING
➤ <b>PRACTICAL-10</b> ROOTS
<b>TO STADY DIFFERENT TYPES OF ROOTS</b>
TAPROOT – VINCA
FIBROUS – GRASS
ADVANTITIOUS – SUGGARCANE

<b>TO STUDY MODIFICATION OF ROOT</b>
PROP ROOT – BANYAN TREE
STILT ROOT – MAIZE
PNEUMATOPHORES – AVICENNIA
STORAGE ROOT – CARROT, SWEET POTATO
➤ <b>PRACTICAL-11 TO STUDY DIFFERENT TYPES OF STEM</b>
<b>TO STUDY AERIAL STEM</b>
CUDEX – PALMS,
CLUM – BAMBOO,
SCAPE – CANNA AND ONION,
EXCURRENT – POLYANTHIA LONGIFOLIA, CASURINA,
DELIQUESCENT – MANGO,
WEAK STEM – IPOMOEIA
<b>TO STUDY UNDERGROUND STEM</b>
RHIZOME – GINGER, TURMERIC
TUBER – POTATO
BULB – ONION
CORN – AMORPHOPHOLLUS
<b>TO STUDY SPECIALIZED STEM</b>
HYLLOCLADE – OPUNTIA
CLADODE – ASPARAGUS
➤ <b>PRACTICAL-12 LEAF</b>
<b>TO STUDY DIFFERENT TYPES OF LEAF</b>
SIMPLE LEAF: BANYAN LEAF
COMPOUND LEAF:
<b>PINNATE:</b> UNIPINNATE – CASSIA, ROSE
BIPINNATE – MIMOSA, CAESALPINIA
TRIPINNATE – MORINGA
DECOMPOUND – CARIANDER
<b>PALMATELY:</b> UNIFOLIATE – CITRUS
BIFOLIATE – BALAUITES, BAUHINIA
TRIFOLIATE – CROTALARIA, OXALIS
QUADRIFOLIATE – MARSILEA
MULTIFOLIATE – BOMBAX

➤ <b>PRACTICAL-13 FLOWER</b>
<b>TO STUDY DIFFERENT TYPES OF FLOWER</b>
1. REGULAR FLOWER : IPOMOEA
2. IRREGULAR FLOWER : CLITORIA, CAESALPINIA
3. UNISEXUAL FLOWER : COCCINIA
4. BISEXUAL FLOWER : HIBISCUS
➤ <b>PRACTICAL-14 BOTANICAL NAME, FAMILY, ORIGIN, DISTRIBUTION AND USES OF THE FOLLOWING CROPS</b>
1.SUGAUCANE
2. PADDY
3. MANGO
4. BRINJAL

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**F.Y.B.SC SEM-2(05)**

**BOTANY PAPER 201: Plant physiology, plant cytology, plant anatomy, cell biology, medicinal plant, plant pathology**

➤ <b>UNIT-1 PLANT Physiology,</b>
DIFFUSION, WATER POTENTIAL,
ACTIVE AND PASSIVE TRANSPORT, PERMEABILITY, PLASMOLYSIS
OSMOTIC RELATION OF PLANT CELL, OSMOSIS,
<b>PLANT MOVEMENT</b>
PLANT MOVEMENT – DEFINITION AND TYPES OF MOVEMENT
PHOTOSYNTHESIS: DEFINITION, PIGMENT, LIGHT AND DARK REACTION, C3 AND C4 CYCLE, CAM.
➤ <b>UNIT-2 PLANT ECOLOGY</b>
PLANT ADAPTATIONS
MORPHOLOGICAL AND ANATOMICAL CHARACTERS OF HYDROPHYTES, MESOPHYTES AND XEROPHYTES WITH APPROPRIATE EXAMPLES
➤ <b>UNIT-3 PLANT ANATOMY, CELL BIOLOGY</b>
CELLWALL: LAYER FUNCTIONS, FORMATION OF CELL WALL

TISSUE SYSTEME OF PLANT, DEFINATION OF TISSUE, TYPES OF TISSUE
MERISTEMATIC AND PERMANENT TISSUE
VUSAEALAR BUNDLE: - DEFINATION AND TYPES
TYPES OF VASCULAR BUNDLE
<b>STELE:</b>
DEFINATION, TYPES OF STELE
<b>➤ UNIT-4 MEDICINAL PLANT AND MAJOR CROPS</b>
(SCIENTIFIC NAME, FAMILY, USE OF PLANT AND MEDICINAL USE OF FOLLOING)
(1) <u>OCCIMUN SANCTEUM</u>
(2) <u>ADHATODA VASICA</u>
(3) <u>ALOE BARBEDENSE</u>
(4) <u>AZADIRACHTA INDICA</u>
(5) <u>ZINGIBER OFFICINACE</u>
<b>MAJAR CROP -</b>
LEGUMES - (PIGAON PEA, GREEN GRAM, GREEN PEA, SOYABEAN, CHICK PEA)
SCIENTIFIC NAME, LOCAL NAME, FAMILY, USED PLANT AND USES.
<b>➤ UNIT-5 PLANT DISEASES.</b>
<b>PLANT PATHOLOGY:-</b>
C AUSAL ORGANISMS, SYMPTOMS, CONTROL MEASURES OF THE FOLLOING PLANT DISEASES
(1) LEAF SPOT OF MANGO
(2) RED ROT OF SUGAR CANE
(3) BACTERIAL BLIGHT OF PADDY
(4) LITTLE LEAT OF BRINGAL
(5) CITRUS CANER

## **BOTANY PAPER 202: weed mangement, cell biology, plant biodiversity,**

<b>➤ UNIT-1 WEED MANGEMANT AND CELL BIOLOGY</b>
DEFINATION OF WEED MANGEMANT AND INTRODUCTION OF WEED MANGEMANT
WEED CANTROL: PHYSICAL, CHEMICAL AND BIOLOGICAL METHODS
SUSTAINABLE USE OF WEEDS.
CELL BIOLOGY - GENERAL STRUCTURE AND CONSTITUENTS OF CELL, STRUCTURE AND FUNCTION OF PLANTS CELL, CHLOROPLAST, MITOCHONDRIA.
<b>➤ UNIT-2 GYMNOSPERM:-</b>
CLASSIFICATIONS, EXTERNAL MORPHOLOGY, INTERNAL STRUCTURE, REPRODUCTION AND ALTERNATIONS OF GENERATION IN CYCAS.
<b>➤ UNIT-3 PLAINT MORPHOLOGY</b>

PHYLLOTAXY -DEFINATION AND TYPES OF PHYLLOTAXY
AESTIVATIONS - DEFINATION AND TYPES OF AESTIVATION.
INFLORESCENSE - DEFINATION AND TYPES - RACEMOSE AND CYMOSE
PLACENTATION - DEFINATION AND TYPES
➤ <b>UNIT-4 ANGIOSPERM (FLOWERING PLANT)</b>
CLASSIFICATION AS PER BENTHAM AND HOOKERS SYSTEM OF CLASSIFICATION GENERAL CHARACTERSTICS, COMMON NAME OF FAMILY PLANT, ECONOMIC IMPORTANT PLANT OF THE FOLLOWING FAMILIES FLORAL FORMULA SYMBOL AND FLORAL CHARACTERSTICS.
(1)MALVACEAE (2) RUBIACEAE (3) CONVOLVULACEAE (4) AMARILLIDACEAE
➤ <b>UNIT-5 BIODIVERSITY AN CONSERVATION OF PLANT BIODIVERSITY.</b>
INTRODUCTION TO BIODIVERSITY, WHY PRESURE BIODIVERSITY?
CONSERVATIONS: DEFINATION, NEED TO CONSERVE, BIODIVERSITY, METHOD OF CONSERVATION OF LIVING RESOURCE
IN SITU CONSERVATION
EX SITU CONSERVATION.
BOTANICAL GARDEN.

## BOTANY PAPER 203: BOTANY PRACTICAL

➤ <b>PRACTICAL - 1 PLANT PHYSIOLOGY - (EXPERIMENT TO DEMONSTRATED)</b>
(1) <b>PLASMOLYSIS - TRADENCANTIA</b>
<b>(2) PLANT MOVEMENT</b>
GEOTROPISM
PHOTOTROPISM
HYDROTROPISM
<b>(3) PHOTOSYNTHESIS</b>
MOHL'S HALF LEAF EXPERIMENT
LIGHT IS NECESSARY FOR PHOTOSYNTHESIS
➤ <b>PRACTICAL - 2 PLANT ECOLOGY (FRESH SPECIMENS TO BE SHOWN TO THE STUDENT)</b>
<b>HYDROPHYTES:-</b>
HYDRILLA, VALLISNARIA, EICHNARIA, PISTIA, NYMPHAEA, MARSILEA.
<b>MESOPHYTES:-</b>
CORIANDER, TRIGONELLA, GARLIC, (ENTIRE PLANTS)
<b>XEROPHYTES</b>
SOLANUM XANTHOCARPUM, CASUARINA, ALOEVERA, OPUNTIA, EUPHORBIA, TIRUCULLI
➤ <b>PRACTICAL - 3 TISSUE : TISSUE (PERMANENT SLIDES):</b>
(1) ROOT APEX
(2) SHOOT APEX
(3) PARENCHYMA
(4) AERENCHYMA
(5) CHLORENCYMA
(6) COLLENCYMA
(7) SCLERENCHYMA
(8) XYLEM - SPIRAL VESSELS, PITTED VESSELS
(9) PHLOEM ELEMENT
➤ <b>PRACTICAL - 4 STELE: (PERMANENT SLIDES)</b>
(1) ACTINOSTELE
(2) PLECTOSTELE
(3) AMPHIPHLOIC SIPHONOSTELE
(4) EUSTELE
(5) ATACTOSTELE
➤ <b>PRACTICAL - 5 CELLWALL (PERMANENT SLIDE)</b>
CELLWALL (T.S) (L.S)
➤ <b>PRACTICAL - 6 VASCULAR BUNDLES</b>
RADIAL
AMPHICRIBRAL
COLLATERAL AND OPEN
COLLATERAL AND CLOSED
BICOLLATERAL



➤ <b>PRACTICAL - 7 MEDICINAL PLANTS</b>
SCIENTIFIC NAME, FAMILY, PART USE AND MEDICINAL USES OF FOLLOWING
<u>OCIMUM SANCTUM</u>
<u>ADHATODA VASICA</u>
<u>ALOE BARBEDENSE</u>
<u>ZINGIBER OFFICINALE</u>
<u>ABRUS PRECATORIUS</u>
➤ <b>PRACTICAL - 8 PLANT DISEASES</b>
CAUSAL ORGANISMS, SYMPTOMS AND CONTROL MEASURES OF THE FOLLOWING
LEAF SPOT OF MANGO
RED ROT OF SUGARCANE
BACTERIAL BLIGHT OF PADDY
LITTLE LEAF OF BRINJAL
CITRUS CANCKER
➤ <b>PRACTICAL - 9 WEED MANGEMENT</b>
OBSERVATION OF WEED WITH REFERNCE TO BACTERIAL NAME, FAMILY, MORPHOLOGICAL PECULIARITIES:
NATIVE: CYNDON, CYPRUS, AMARANTHUS, PANICUM
EXOTIC/ INVASIVE: ALTERNANTHERA, DESMOSTACHYA, EUPHORBIA, MALACHARA
➤ <b>PRACTICAL - 10 GYMNASPERMS</b>
CYCAS:
PREPARATION OF SLIDE FROM THE FRESH MATERICAL BY THE STUDENT
1. T.S OF RACHIS
2. T.S OF LEAFLET
<b>PARMANENT SLIDES:</b> T.S OF LEAT LET, T.S OF RACHIS T.S OF COROLLOID ROOT, T.S OF MICROSPOROPHYLLUS, T.S OF MEGASPOROPHYLLUS L.S OF OVULE.
<b>PRESERVE SPECIMEN:</b> COROLLOID ROOT, MICROSPOROPHYLL AND MEGASPOREOPHYLL.
➤ <b>PRACTICAL - 11 PHYLLOTAXY</b>
1. DISTICHOUS
2. TRISTICHOUS
3. PENTASTICHOUS
4. OPPOSITE SUPERPOSE
5. OPPOSITE DECUSSATE
6. VERTICILLATE OR WHORLED
7. HETROPHYLLY
➤ <b>PRACTICAL - 12 AESTIVATION</b>
VALVATE: CALYX OF HIBISCUS
TWISTED: COROLLA OF HIBISCUS
IMBRICATE: COROLLA OF CAESALPINIA
QUINCUNCIAL: COROLLA OF ANTIGONON

VEXILLARY: COROLLA OF CLITORIA
➤ <b>PRACTICAL - 13 INFLORESCENCE</b>
<b>RACEMOSE</b>
RACEME - CAESALPINIA PULLCHERIMA, BRASSICA JUNCEA
SPIKE - ACHRANTHUS ASPERA, POLIANTHES TUBEROSA
SPADIX - COLOCASIA
CATKIN - ACALYPHA HISPIDA
SPIKELETS - POACEAE (ANY PLANT)
CORYMB - CASSIA, IXORA
UMBEL - CORIANDRUM
CAPITATE - ACACIA, ALBIZZIA
CAPITULUM - HELIANTHUS, TRIDAX
<b>CYMOSE</b>
<b>UNBRANCHED</b>
SOLITARY, TERMINAL - DATURA
SOLITARY, AXILLARY - HIBISCUS
<b>BRANCHED</b>
HELICOID - HAMELIA
SCORPIOID - HELIOTROPICUM
DICHASIAL OR BIPAROUS CLERODENDRUM NYCTANTHUS JASMINUM
POLYCHASICAL OR MULTIPAROUS NERIUM, CALOTROPIS
➤ <b>PRACTICAL - 14 PLACENTATION (PERMANENT SLIDE)</b>
MARGINAL
AXILE
FREECENTRAL
PARIETAL
SUPERFICIAL
BASAL
➤ <b>PRACTICAL - 15 FAMILY PLANTS</b>
MALVACEAE - HIBISCUS PLANT
RUBIACEAE - IXORA (NAVERI)
CONVOLULACEAE - IPOMEA PALMATA
NYCTAGINACEAE - BOUGAINVILLEA
AMARYLLIDACEAE - POLIANTHES (NAGDAMNI)
➤ <b>PRACTICAL - 16 MAJOR CROPS</b>
<b>LEGUMES</b> - (PIGEONPEA, GREENGRAM, GREEN PEA, SOYABEAN, CHICKPEA)
<b>BEVERAGES</b> - TEA, COFFEE, COCOA

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