GUJARAT UNIVERSITY  
Ahmedabad

Choice Based Credit System (CBCS) Syllabus

B. Sc. - BOTANY  
Semester –III
( Theory and Practical )

Effective from June - 2018

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<th>Core course ( CC )</th>
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<td>BOT-202</td>
<td>BOT-203 ( Part A / Session-I + Part B / Session-II )</td>
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<tr>
<td>Credit</td>
<td>04 credit</td>
<td>04 credit</td>
<td>2.5 credit</td>
</tr>
<tr>
<td>Teaching hours / week</td>
<td>04 hours</td>
<td>04 hours</td>
<td>06 hours</td>
</tr>
<tr>
<td>Examination marks ( External + Internal )</td>
<td>100 marks</td>
<td>100 marks</td>
<td>100 marks</td>
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<td>Semester end External Examination Marks</td>
<td>70 marks</td>
<td>70 marks</td>
<td>70 marks</td>
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</table>
| Internal Exam. Marks. | 30 marks [15 ( Written Test )  
15 ( Assignment, Seminar / Quiz , Attendance)] | 30 marks [15 ( Written Test )  
15 ( Assignment, Seminar / Quiz , Attendance)] | 30 marks |
| Semester end External Examination Duration | 03 hours | 03 hours | 09 hours |
|                      |               |               | Part A- 04.30 hours + Part B -04.30 hours |

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<th>Core course</th>
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<td>UNIT-2</td>
<td>Fungi, Lichens, Plant Pathology</td>
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<td>UNIT-3</td>
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<td>UNIT-4</td>
<td>Economic Botany</td>
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<td>Paper BOT-201</td>
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</tbody>
</table>

- Detailed Curriculum has been designed as per semester system.
- There shall be two theory papers having four units each and one practical paper in semester.
- Students must be taken on a Botanical excursion / Field Trip or visit to a Research /Academic Institute , Science / Space exhibition , Participation in science based Seminar etc. to enhance the study experience.
- Students must record the laboratory work done in a journal. The journal is to be certified by the Teacher in-charge and Head of the department.
- Duly certified journals have to be produced while appearing at the time of university exam.
- Project work should be in tune with the syllabus and the presentation will carry due weight-age.
GUJARAT UNIVERSITY
B. Sc. Semester-III
BOTANY
Choice Based Credit System Syllabus : Effective from June - 2018

Core Course ( CC ) Paper BOT- 201 (Theory )
[ CRYPTO GAMES , PLANT PATHOLOGY & ECONOMIC BOTANY ]

Credit: 04
Teaching Hours: 04 hours / Week
Total Marks : 100 ( External 70 + Internal 30 ) Marks

UNIT – I : ALGAE.
- To acquaint students with lower group of plants ( Cryptogams ).
- General account : Habit and habitat of algae.
- Life history of the following genera including morphology and reproduction excluding
development: ( Classification as per G. M. Smith )

UNIT - II: FUNGI, LICHENS AND PLANT PATHOLOGY.
- Ultrastructure of fungal cell.
- Life history of the following genera including morphology and reproduction, excluding
development ( Classification according to Ainsworth):-
  1. Claviceps 2. Puccinia
- Types of Lichens.
- Introduction to plant pathology, Types of plant diseases- bacterial, fungal & viral;
  Types of symptoms- Necrosis, hypertrophy, atrophy, change in colour.

UNIT - III: BRYOPHYTES.
- Life history of the following genera with external and internal structure, reproduction,
excluding development. ( Classification as per Rothmaler )
  1. Plagiochasma 2. Funaria ( Moss )
- Economic importance of Bryophytes.

UNIT- IV: ECONOMIC BOTANY
- General account, ecological factors, cultivation , Botanical name ,Family and uses of plants.
- Habit, Habitat, Botanical name , Family, wood characteristics and uses of Tree species:
  Timber : 1. Tectona grandis 2. Gmelina arborea
  Firewood : 3. Zizyphus jujuba 4. Salvador a persica
- Habit, Habitat, Botanical name , Family, Useful parts and uses of the following Plants.
- Habit, Botanical name , Family, Useful parts and Chemical constituents and uses of Plants.
  Medicinal plants: 1. Adhatoda 2. Trigonella 3. Tinospora
Core Course (CC) Paper BOT- 201 ( Theory )
[ CRYPTOAMES , PLANT PATHOLOGY & ECONOMIC BOTANY ]

SUGGESTED READING : REFERENCE BOOKS / TEXT BOOKS
Teacher may suggest revised or latest published books etc.to the students

Core Course (CC) Paper BOT- 202 (Theory)
[ PLANT ANATOMY, ECOLOGY, EMBRYOLOGY & CELL BIOLOGY ]

Credits: 04
Teaching Hours: 04 hours / Week
Total Marks: 100 (External 70 + Internal 30 ) Marks

UNIT - I: PLANT ANATOMY:
- Meristems: Characteristics, classification and theories of root - shoot apical meristem.
- The cambium: Types and functions.
- Simple Plant tissues: Types, Structure and functions.
- Comparative account of anatomy in following:
  - Dicot stem (Sunflower) and Monocot stem (Maize)
  - Dicot root (Sunflower) and Monocot root (Maize).
- Normal Secondary growth in Sunflower stem.

UNIT - II: PLANT ECOLOGY:
- Edaphic factors: Composition of soil, origin and development of soil, soil water, soil profile, soil erosion and soil conservation.
- Autecology of species-Biological clock, Definition and brief understanding of Ecads and Ecotypes, Ecological niche.
- Remote sensing- Definition and applications for ecosystem management.
- Ecological adaptations in Hydrophytes and Xerophytes: General account.
  - External and Anatomical adaption of Following:
    - Hydrophytes: Hydrilla stem and Nymphaea petiole
    - Xerophytes: Nerium leaf and Casuarina stem

UNIT - III: PLANT EMBRYOLOGY:
- Structure of microsporangium and male gametophyte.
- Structure of ovule and its types.
- Structure of megasporangium and female gametophyte.
  - Monosporic, Bisporic, Tetrasporic (Fritillaria type).
- Pollination- Definition and types. Pollination in Salvia and Calotropis.
- Fertilization in plants, Double fertilization.

UNIT - IV: PLANT CELL BIOLOGY
- Ultrastructure and Function of the following cell organelles:
  1. Cell wall
  2. Endoplasmic reticulum
  3. Ribosome
  4. Nucleus
  5. Lysosomes
  6. Dictyosomes
- Structure and models of plasma membrane:
  - Sandwich model, Unit-membrane model and Fluid-mosaic model
Core Course (CC) Paper BOT- 202 (Theory)
[ PLANT ANATOMY, ECOLOGY, EMBRYOLOGY & CELL BIOLOGY ]

SUGGESTED READING : REFERENCE BOOKS / TEXT BOOKS
Teacher may suggest revised or latest published books etc.to the students

Core Course (CC) Paper BOT- 203 ( Practical )
[ PART- A ( SESSION - I ) BASED ON THEORY PAPER BOT-201 ]
Credits : 2.5 ( Part -A & B )  
Teaching Hours: 03 hrs / Week  
Total Marks: 50 (Ext.35 + Int.15)

To study following practicals:

1. To study Algae – Oedogonioium.
   Classification , Mounting of Vegetative thallus and Macrandrous and Nanandrous species. Permanent slides of sexual reproduction organs and cap cell in thallus.

2. To study Algae – Ectocarpus.
   Classification, Mounting of vegetative thallus, Unilocular and Plurilocular sporangia. Permanent slides of Unilocular and Plurilocular sporangia.

3. To study Algae - Batrachospermum.
   Classification , Mounting of vegetative thallus, Cystocarp. Permanent slides of antheridia, archegonia and Cystocarp.

4. To study Fungi – Claviceps.
   Classification , Mounting of conidia. Permanent slide of Claviceps stroma (V.S).

5. To study Fungi – Puccinia.
   Classification , Mounting of Uredospore and Teleutospore. Permanent slides of Uredospore, Teleutospore, Pycniospore and Aeciospore.

6. To study Bryophytes – Plagiochasma.
   Classification , Specimen of Thallus, reproductive organs. Permanent slides or charts of V.S. of thallus and reproductive organs.

7. To study Bryophytes- Funaria ( Moss ).
   Classification , Mounting : Antheridia, Archegonia, Peristomial teeth. Specimen : Funaria gametophyte with sporophyte. Permanent slides : Antheridia, Archegonia, Sporophyte L.S.

8. To study Economic Botany of Plant fibers, Timbers and Firewoods.
   As Timbers: 4. Tectona grandis 5. Gmelina arborea
   As Firewoods: 6. Zizyphus jujuba 7. Salvadora persica

9. To study Economic Botany of Essential oils and Medicinal plants :
   As Essential oil : 1. Eucalyptus  2. Jasmine  3. Rose
   As Medicinal Plants 4. Adhatoda 5. Trigonella 6. Tinospora

Suggested Readings:
Practical Botany vol. I & II By Bendre and Kumar, Rastogi Publication.
Practical Botany by S. C. Santra, Chettarjee and Das, New Central Book Agency.
Experimental Plant Ecology by Pratim Kapur and Sudha Rani, CBS Publication.
Core Course (CC) Paper BOT- 203 ( Practical )
[ PART - B ( SESSION - II ) BASED ON THEORY PAPER BOT-202 ]
Credits : 2.5 ( Part -A & B )  
Teaching Hours: 03 hrs / Week  
Total Marks: 50 (Ext.35 + Int.15)

To study following practicals:

1. **To study Plant anatomical structure : Shoot and root apex.**
   Permanent slides of shoot apex (Dictyota and chara) and root apex.
   Mounting of shoot apex from hydrilla shoot.

2. **To study Plant anatomical structure : Simple tissues and cambium.**
   Permanent slides of Parenchyma, Collenchyma, Sclerenchyma and Chlorenchyma.
   Permanent slides of cambium and cork cambium.

3. **To study Plant anatomical structure: Comparative study of Root & Stem.**
   Permanent slides of Sunflower and Maize stem T.S.
   Permanent slides of Sunflower and Maize root T.S.
   Double stain temporary preparation of Sunflower stem T.S. and Maize stem T.S.
   Double stain temporary preparation of Sunflower root T.S. and Maize root T.S.

4. **To study Plant anatomical structure: Normal Secondary growth.**
   Double stained temporary preparation of Sunflower stem T.S. for normal secondary growth.

5. **To study External and anatomical ecological adaptation:**
   Hydrophytes : Hydrilla stem and Nymphaea petiole.
   Xerophytes : Nerium leaf and Casuarina stem.

6. **To study plant embryology : Anther and Pollen grain.**
   Permanent slide of T.S. of Anther.
   Pollen grain germination. (in vitro), Permanent slide of Pollen grain germination on stigma.

7. **To study plant embryology : Ovules and female gametophyte**
   Permanent slides or charts of Ovule types.
   Permanent slides of female gametophyte.

8. **To study cell organelles :**
   Micrograph or charts of Cell wall, Endoplasmic reticulum, Ribosome and Nucleus.

9. **To study cell organelles :**
   Micrograph or charts of Lysosome, Dictyosome and cell membrane models.
   (Sandwich model, Unit- membrane model and Fluid-mosaic model).

10. **Project work / Submission.**

**Suggested Readings:**
Practical Botany vol. I & II By Bendre and Kumar, Rastogi Publication.
Practical Botany by S. C. Santra, Chettarjee and Das, New Central Book Agency.
Experimental Plant Ecology by Pratim Kapur and Sudha Rani, CBS Publication.
Core Course (CC) Paper BOT- 203 (Practical)
[PART-A (SESSION-I) BASED ON THEORY PAPER BOT-201]

SKELETON OF UNIVERSITY PRACTICAL EXAMINATION

Date: __ / __ / ____  Exam Hours: 4 Hours 30 min  Total Marks: 35

Que. 1  Identify, classify and describe peculiarities of given Specimen A and B.  12

Que. 2  Expose the reproductive organ from given specimen C.
Prepare temporary slide and show it to the examiner.  06

Que. 3  Identify and describe the following specimens  12
(i) Specimen: D (Types)
(ii) Specimen: E (Types)
(iii) Specimen: F (Economic Botany)
(iv) Specimen: G (Economic Botany)

Que. 4  Journal.  05

Que. 5  Project work / Submission / Viva voce.  10

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Core Course (CC) Paper BOT- 203 (Practical)
[PART-B (SESSION-II) BASED ON THEORY PAPER BOT-202]

SKELETON OF UNIVERSITY PRACTICAL EXAMINATION

Date: __ / __ / ____  Exam Hours: 4 Hours 30 min  Total Marks: 35

Que. 1  Take T. S. and prepare a temporary double stained slide of given specimen A, show it to your examiner.  08

Que. 2  Identify and describe external and internal ecological adaptation of given specimen B and comment upon its ecological nature.  05

Que. 3  Expose pollen grain and germinate in proper media from specimen C.  04

Que. 4  Identify and describe the following specimens  08
(i) Specimen: D (Chart / Micrograph - Cell biology)
(ii) Specimen: E (Chart / Micrograph - Cell biology)
(iii) Specimen: F (Chart / Slide - Embryology)
(iv) Specimen: G (Chart / Slide - Embryology)

Que. 5  Project work / Submission / Viva voce.  10
B. Sc. Semester – III Theory Examination

Month/ Year __________

BOTANY

Core Course (CC) Paper BOT - 201
[ CRYPTOGENES, PLANT PATHOLOGY & ECONOMIC BOTANY ]

Core Course (CC) Paper BOT - 202
[ PLANT ANATOMY, ECOLOGY, EMBRYOLOGY & CELL BIOLOGY ]

Date: ___ /___ /______ Duration : 03 hours Total Marks:70

Instructions: .............

Que: 1 ( A ) Unit-1 Describe / Explain / Write short notes on ___________________ 07 marks

OR

Que: 1 ( A ) Unit-1 Describe / Explain / Write short notes on ___________________ 07 marks

Que: 1 ( B ) Unit-1 Describe / Explain / Write short notes on ___________________ 07 marks

OR

Que: 1 ( B ) Unit-1 Describe / Explain / Write short notes on ___________________ 07 marks

Que: 2 ( A ) Unit-2 Describe / Explain / Write short notes on ___________________ 07 marks

OR

Que: 2 ( A ) Unit-2 Describe / Explain / Write short notes on ___________________ 07 marks

Que: 2 ( B ) Unit-2 Describe / Explain / Write short notes on ___________________ 07 marks

OR

Que: 2 ( B ) Unit-2 Describe / Explain / Write short notes on ___________________ 07 marks

Que: 3 ( A ) Unit-3 Describe / Explain / Write short notes on ___________________ 07 marks

OR

Que: 3 ( A ) Unit-3 Describe / Explain / Write short notes on ___________________ 07 marks

Que: 3 ( B ) Unit-3 Describe / Explain / Write short notes on ___________________ 07 marks

OR

Que: 3 ( B ) Unit-3 Describe / Explain / Write short notes on ___________________ 07 marks

Que: 4 ( A ) Unit-4 Describe / Explain / Write short notes on ___________________ 07 marks

OR

Que: 4 ( A ) Unit-4 Describe / Explain / Write short notes on ___________________ 07 marks

Que: 4 ( B ) Unit-4 Describe / Explain / Write short notes on ___________________ 07 marks

OR

Que: 4 ( B ) Unit-4 Describe / Explain / Write short notes on ___________________ 07 marks

Que: 5 Write your answer in short : ( each sub-question carry 01 marks) __________ 14 marks

Set 14 Sub-Questions as (a),( b ) , (c )..to ( n ) or ( i ) ,( ii ),( iii )....to ( xiv ) from

Unit-1 ( 3 or 4 que. ), Unit-2 ( 3 or 4 que. ), Unit-3 ( 3 or 4 que. ), Unit-4 ( 3 or 4 que. )
GUJARAT UNIVERSITY
Ahmedabad

Choice Based Credit System (CBCS) Syllabus

B. Sc. - BOTANY

Semester –IV
( Theory and Practical )

Effective from June - 2018

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<th>Botany Theory</th>
<th>Botany Theory</th>
<th>Botany Practical</th>
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<tr>
<td>Paper No.</td>
<td>BOT - 204</td>
<td>BOT - 205</td>
<td>BOT - 206 ( Part A / Session-I + Part B / Session-II )</td>
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<tr>
<td>Credit</td>
<td>04 credit</td>
<td>04 credit</td>
<td>2.5 credit</td>
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<tr>
<td>Teaching hours / week</td>
<td>04 hours</td>
<td>04 hours</td>
<td>06 hours ( Part A - 03 hours + Part B - 03 hours )</td>
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<td>Examination marks ( External + Internal )</td>
<td>100 marks</td>
<td>100 marks</td>
<td>100 marks ( Part A - 50 marks + Part B - 50 marks )</td>
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<tr>
<td>Semester end External Examination Marks</td>
<td>70 marks</td>
<td>70 marks</td>
<td>70 marks ( Part A - 35 marks + Part B - 35 marks )</td>
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<td>Internal Exam. Marks.</td>
<td>30 marks [15 ( Written Test ) 15 ( Assignment, Seminar / Quiz , Attendance)]</td>
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<td>30 marks ( Part A -15 marks + Part B -15 marks )</td>
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<tr>
<td>Semester end External Examination Duration</td>
<td>03 hours</td>
<td>03 hours</td>
<td>09 hours Part A- 04.30 hours + Part B -04.30 hours</td>
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- Students must be taken on a Botanical excursion / Field Trip or visit to a Research / Academic Institute , Science / Space exhibition , Participation in science based Seminar etc. to enhance the study experience.
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- Duly certified journals have to be produced while appearing at the time of university exam.
- Project work should be in tune with the syllabus and the presentation will carry due weight-age
Core Course (CC) Paper BOT- 204 (Theory)
[PTERIDOPHYTES, GYMNOSPERMS, PLANT MORPHOLOGY & TAXONOMY, PLANT PHYSIOLOGY]

Credits: 04
Teaching Hours: 04 hours/Week
Total Marks: 100 (External 70 + Internal 30) Marks

UNIT - I: PTERIDOPHYTES.

- Life history of the following genera with morphology and anatomy excluding development.
  (classification as per Riemer)
  1. Selaginella
  2. Adiantum
- Heterospory and seed habitat.
- Formation and types of fossils.

UNIT - II: GYMNOSPERMS.

- General characters.
- Classification of Gymnosperms given by Chamberlain (1934).
- Life history of Pinus including Morphology, Anatomy (Secondary structure of stem, R.L. S., T.L.S.), Reproduction and Embryogeny.

UNIT - III: PLANT MORPHOLOGY & TAXONOMY.

- Fruit morphology: Development, structure and types.
- Introduction to artificial, natural and phylogenetic systems of classification.
- Bentham and Hooker’s system of classification: Merits and demerits.
- Classification of the following families as per Bentham and Hooker’s system of classification including examples of economic importance plants.
  1. Caesalpiniaeae
  2. Rubiaceae
  3. Apocynaceae
  4. Convolvulaceae
  5. Euphorbiaceae
  6. Nyctaginaceae
  7. Arecaceae (Palmae)

UNIT - IV: PLANT PHYSIOLOGY.

- Absorption of water.
- Properties of water.
- Mechanism of water absorption.
- Transportation of water: Dixon’s theory of cohesion force.
- Growth and development: Definition, Phases of Growth.
- Mineral nutrition in plants.
- Macro and Micronutrients- C, H, O, N, S, P, K, Ca, Fe, Mg, Mn, Zn, B, Cu, Mo
  Source, Functions, Deficiency symptoms and remedies.
Core Course (CC) Paper BOT- 204 (Theory)
[ PTERIDOPHYTES, GYMNOSPERMS, PLANT MORPHOLOGY & TAXONOMY, PLANT PHYSIOLOGY ]

SUGGESTED READING : REFERENCE BOOKS / TEXT BOOKS
Teacher may suggest revised or latest published books etc.to the students

Core Course (CC) Paper BOT- 205 (Theory)

[ PLANT ANATOMY, BIOPHYSICS & BIOCHEMISTRY, GENETICS AND APPLIED BOTANY ]

Credits: 04
Teaching Hours: 04 hours / Week
Total Marks: 100 (External 70 + Internal 30) Marks

UNIT - I: PLANT ANATOMY.
- Complex tissue (Xylem and Phloem).
- Epidermal tissue system including Periderm and Lenticels.
- Anomalous Secondary growth in Achyranthes and Mirabilis stem.
- Anomalous Secondary growth in Ficus aerial root and Carrot root.

UNIT - II: BIOPHYSICS & BIOCHEMISTRY.
- General account of pH and Buffer.
- Protoplasm as a colloidal system.
- Enzymes: Definition, Nomenclature and classification of enzymes.
- Chemical nature of enzymes, Properties of enzymes, Mechanism of enzyme action.
- Factors affecting enzyme activity.
- General account of Secondary metabolites.
- Alkaloides: Definition, types and their importance.

UNIT- III: GENETICS.
- Mendelian genetics: Monohybrid ratio, Dihybrid ratio.
- Gene interactions: Allelic interactions, Non-allelic gene interactions-Complementary and Supplementary genes, Dominant and recessive Epistatis.
- Cytoplasmic inheritance: Definition and Example of Mirabilis.
- Sex determination in plants: Chromosomal theory and theory of heterogamesis.

UNIT- IV: APPLIED BOTANY.
- Pomology: Cultivation and preservation of Mango, Amla, and Jamphal.
- Floriculture: General account.
- Social Forestry and Agroforestry.
- Nursery management.
- Bonsai: General account.
Core Course (CC) Paper BOT- 205 (Theory)  
[ PLANT ANATOMY , BIOPHYSICS & BIOCHEMISTRY ,GENETICS AND APPLIED BOTANY ]

SUGGESTED READING : REFERENCE BOOKS / TEXT BOOKS  
Teacher may suggest revised or latest published books etc.to the students

Core Course (CC) Paper BOT- 206  ( Practical )
[ PART- A ( SESSION - I ) BASED ON THEORY PAPER BOT-204 ]

Credits : 2.5 ( Part -A & B )  Teaching Hours: 03 hrs / Week  Total Marks: 50 (Ext.35 + Int.15)

To study following practicals :

1. To study Pteridophytes : Selaginella.
   Classification , Specimen .
   Permanent slides of Selaginella strobilus L.S. & T.S.
   Mounting of Selaginella spores from strobilus.

2. To study Pteridophytes : Adiantum.
   Classification , Specimen .
   Permanent slides of Adiantum leaflet Passing through sori .
   Mounting of sporangia of Adiantum.

3. To study Gymnosperm : Pinus
   Classification , Specimen , Mounting of Pollen grain.
   T.S. of Pinus needle.
   Specimens: Male cone, Female cone, Needle
   Permanent slides: Ovule, Needle, male cone L.S.

4. To study Plant morphology  : Fruit.
   Specimen / Chart of fruit : Simple Dry , Simple Fleshy , Composite , Aggregate Fruit.

5. To study Plant Family : Caesalpiniaceae , Rubiaceae.

6. To study Plant Family : Apocynaceae, Convolvulaceae.

7. To study Plant Family : Euphorbiaceae , Nyctaginaceae

8. To study Plant Family : Arecaceae ( Palmae ) .

9. To Study Demonstration of experiment :
   Conduction of water through xylem.
   Examples of plants showing mineral deficiency through photos or specimen

Suggested Readings:
1. Practical Botany vol. I & II By Bendre and Kumar, Rastogi Publication.
GUJARAT UNIVERSITY
B. Sc. Semester-IV
BOTANY
Choice Based Credit System Syllabus : Effective from June - 2018

Core Course (CC) Paper BOT- 206 ( Practical )
[ PART- B ( SESSION - II ) BASED ON THEORY PAPER BOT-205 ]

Credits : 2.5 ( Part -A & B )  Teaching Hours: 03 hrs / Week  Total Marks: 50 (Ext.35 + Int.15)

To study following practicals :

1. To study Plant anatomy : Complex Tissues
   Permanent slides of Xylem and Phloem

2. To study Plant anatomy : Epidermal tissue system
   Permanent slides of hairs and glands types .
   Types of stomata
   Types of Epidermis ( Unisereate and Multisereate)
   Periderm and Lenticel

3. To study Plant anatomy : Anomalous secondary growth
   Make a temporary double stained slide preparation of Achyranthus a stem

4. To study Plant anatomy : Anomalous secondary growth
   Make a temporary double stained slide preparation of Mirabilis stem

5. To study Plant anatomy : Anomalous secondary growth
   Make a temporary double stained slide preparation of Ficus aerial root , Carrot root.

6. To study Plant Biochemistry
   Determination of pH of various solutions.

7. To study Plant Biochemistry
   Enzyme activity- amylase and Catalase.
   Demonstration of alkaloid extraction using Soxhlet apparatus.

8. Examples of Genetics:
   Monohybrid / Dihybrid /Interaction of genes.

9. To study bonsai:
   Specimen and Chart of Bonsai.


Suggested Readings:
Practical Botany vol. I & II By Bendre and Kumar, Rastogi Publication.
Practical Botany by S. C. Santra, Chettarjee and Das, New Central Book Agency.
Experimental Plant Ecology by Pratim Kapur and Sudha Rani, CBS Publication.
GUJARAT UNIVERSITY
B. Sc. Semester-IV
BOTANY
Choice Based Credit System Syllabus : Effective from June - 2018

Core Course (CC) Paper BOT- 206 ( Practical )
[ PART- A ( SESSION - I ) BASED ON THEORY PAPER BOT-204 ]
SKELETON OF UNIVERSITY PRACTICAL EXAMINATION
Date:__/__/____ Exam Hours: 4 Hours 30 min Total Marks: 35

Que. 1 Identify, classify and describe given Specimen A. 04
Que. 2 Identify and classify giving general characters of the given family specimen B & C. 12
Que. 3 Expose reproductive structure from specimen D. 04
Que. 4 Identify and describe the following specimens 10
Specimen : E ( Pteridophyte )
Specimen : F ( Gymnosperms )
Specimen : G ( Morphology )
Specimen : H ( Physiology )
Que. 5 Journal 05

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Core Course (CC) Paper BOT- 206 ( Practical )
[ PART- B ( SESSION - II ) BASED ON THEORY PAPER BOT-205 ]
SKELETON OF UNIVERSITY PRACTICAL EXAMINATION
Date:__/__/____ Exam Hours: 4 Hours 30 min Total Marks: 35

Que. 1 Take T. S. and prepare a double stained slide of given specimen A. 08
Que. 2 Determine pH value of given solution with the help of universal indicator and show your results to examiner. 04
Que. 3 Solve the genetic problem.( As per given slip ) 04
Que. 4 Identify and describe the following specimens 09
Specimen B : ( Anatomy slide )
Specimen C : ( Anatomy slide )
Specimen D : ( Bonsai specimen / chart )
Que. 5 Project Work / Submission / Viva voce. 10
GUJARAT UNIVERSITY  
B. Sc. Semester-IV  
BOTANY  
Choice Based Credit System Syllabus : Effective from June - 2018

UNIVERSITY THEORY EXAMINATION PAPER PATTERN

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B.Sc. Semester – IV Theory Examination  
__________Month/ Year ________

BOTANY  
Core Course (CC) Paper BOT - 204  
[ PTERIDOPHYTES, GYMNOSPERMS, PLANT MORPHOLOGY & TAXONOMY, PLANT PHYSIOLOGY ]

Core Course (CC) Paper BOT - 205  
[ PLANT ANATOMY, BIOPHYSICS & BIOCHEMISTRY, GENETICS AND APPLIED BOTANY ]

Date: __/___/______  
Duration : 03 hours  
Total Marks: 70

Instructions: ……………

Que: 1 (A) Unit-1 Describe / Explain / Write short notes on _____________________ 07 marks

OR

Que: 1 (B) Unit-1 Describe / Explain / Write short notes on _____________________ 07 marks

Que: 2 (A) Unit-2 Describe / Explain / Write short notes on _____________________ 07 marks

OR

Que: 2 (B) Unit-2 Describe / Explain / Write short notes on _____________________ 07 marks

Que: 3 (A) Unit-3 Describe / Explain / Write short notes on _____________________ 07 marks

OR

Que: 3 (B) Unit-3 Describe / Explain / Write short notes on _____________________ 07 marks

Que: 4 (A) Unit-4 Describe / Explain / Write short notes on _____________________ 07 marks

OR

Que: 4 (B) Unit-4 Describe / Explain / Write short notes on _____________________ 07 marks

Que: 5 Write your answer in short: (each sub-question carry 01 marks) 14 marks

Set 14 Sub-Questions as (a), (b), (c), to (n) or (i), (ii), (iii), … to (xiv) from

Unit-1 (3 or 4 que.), Unit-2 (3 or 4 que.), Unit-3 (3 or 4 que.), Unit-4 (3 or 4 que.)