Krantiguru Shyamji Krishna Verma

***Kachchh University***

Mundra Road

**BHUJ : 370 001**

 SYLLABUS ( CBCS )

**B. Sc. Semester II**

Botany

Code : USCEBO -202

With effect from June 2016

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**KSKV Kachchh University, Bhuj - Kachchh**

F.Y. B.Sc. (Botany) Syllabus as CBCS System

**Semester II** (w.e.f. June 2016)

Name of the Paper: **Pteridophytes, Gymnosperm, Anatomy, Ecology, Physiology, Biochemistry and Applied botany**

 Paper No. : **USCEBO - 202**

**Unit – 1** **Pteridophytes and Gymnosperms** **[15 Marks]**

* 1. Outline classification only up to classes of pteridophytes (G.M.Smith)
	2. Life history of Selaginella (Excluding anatomy & Development)
	3. Outline classification only up to classes of Gymnosperms
	4. Life history of Cycas (Excluding anatomy & Development)

**Unit – 2 Anatomy & Ecology [15 Marks]**

2.1 Meristematic tissue (Characteristics & Classification), Primary growth

and Secondary growth (Normal & Anomalous)

2.2 Normal secondary growth in Sunflower stem & root.

2.3 Brief account of Ecosystem

2.4 Ecological adaptation of Hydrophytes, Xerophytes and Halophytes.

2.5 Structure and Ecological adaptations of Nymphoea petiole,

 Casuarina stem and Avicennia leaf.

**Unit – 3 Physiology and Biochemistry [15 Marks]**

 3.1 Structure of Photo synthetic pigments

 3.2 Photosynthesis: Light Reaction (Cyclic & Non Cyclic), Dark

Reaction, C3, C4 & CAM

 3.3 pH (Definition) & Buffers (Definition & Types with examples)

 3.4 Laws of thermodynamics (Lows only- no description)

 3.5 Classification & Nomenclature of Enzymes.

 3.6 Water relations (Osmosis, Diffusion, Imbibition and Plasmolysis)

**Unit – 4 Plant resources & Applied Botany [15 Marks]**

 4.1 Brief account and uses of the followings.

 Medicinal plants: Neem, Senna, Isabgul, Ashwgandha

4.2 Brief account and uses of the followings.

 Food Plants: Wheat, Gram, Sugar cane, Groundnut

4.3 Brief account and uses of the followings.

 Natural Rubber: Hevea

**Reference Books**

**Semester-2**

**A Text Book of Botany** Vol I & II, by Pandey S.N. , Mishra S.P. & Trivedi P.S.

**A Text Book of Botany** Vol I & II, by Ganguli, Das & Dutta

**A Text Book of Botany, by Ganguli & Kar**

**Algae, Fungi, Brayophata, Pteridophyta**, by B.R.Vashshta

**Algae, Fungi, Brayophata, Pteridophyta**, by B.P.Pandey

**Cryptogamic Botany** Vol I &II, by G.M.Smith

**College Botany**, byA.C. Datta

**College Botany**, by B.P. Pandey

**Gymnosperm**, by Vashishta

**Plant Anatomy,** by B.P.Pandey

**Plant Anatomy**, by K. Esau

**Plant Anatomy**, by K.P.Saxena

**Plant Anatomy**, by P.J. Chandulkar

**A Text Book of Plant Anatomy**, by P.C. Vashishta

**Plant Physiology**, by S.N. Pandey & B.K.Sinha

**Plant Physiology-Fundamentals & Applications**, Kumar & Purohit

**A Text Book of Plant Physiology,** by V. Verma

**Biochemistry**, by Powar C.B.

**Fundamental of Biochemistry**, by J.L.Jain

**Fundamentals of Plant Physiology**, by V.K.Jain

**A Text Book of Plant Physiology, Bochemistry & Biotechnology**, S.k.Verma & Mohit Verma

**Cell Biology, Genetics, Ecology and Evolution**, by Verma P.S. , Agarwal V.K.

**Basic Ecology**, by Eugene P. Odum

**Medicinal Herbs & Flowers**, by S.K. Bhattacharjee

**A Handbook of Medicinal Plants**, Prajapati, Purohit Sharma & Kumar

**Ethnobiology**, by Rajiv K. Sinha & Sweta Sinha

**The Structure of the Question Paper for the University Exam**

Total Marks : 60

Total No. of Questions : 04

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| --- | --- | --- | --- |
| Question No. | Sub-question  | Question type | Marks |
| **Que-1**Unit-1  | A (One Mark each) | Short questions (No internal Options) | 05 |
| B (Five Marks each) | Descriptive Questions with Internal Option | 10 |
| **Que-2**Unit-2 | A (One Mark each) | Short questions (No internal Options) | 05 |
| B (Five Marks each) | Descriptive Questions with Internal Option | 10 |
| **Que-3**Unit-3 | A (One Mark each) | Short questions (No internal Options) | 05 |
| B (Five Marks each) | Descriptive Questions with Internal Option | 10 |
| **Que-4**Unit-4 | A (One Mark each) | Short questions (No internal Options) | 05 |
| B (Five Marks each) | Descriptive Questions with Internal Option | 10 |

* The examination pattern of the university is 60% external and 40% internal.
* Types of questions for section A may be varied like: one line answers / two line answers / definitions / reasoning / drawing small figures/ label the figure / fill in the blanks / multiple choice question/ one word answer / match the pairs etc.
* Each theory paper will have 4 lectures in a week and a practical will have 6 lectures per batch in a week.
* For the Practical, the practical batch must not exceed 20 students.
* The Botanical Excursion is highly essential for studying vegetation in its natural state. There shall be at least one Botanical Excursion.
* This is compulsory to record laboratory work in the Journal. The Journal is to be certified by the in charge concerned and the Head of the Department. Certified journal have to produced while appearing at the time of Practical examination
* Excursion report and submission of specimens / Submission of Project work will be mandatory for all the students.
* Minimum length of the submission is printed five A4 size pages.

**Semester – II Syllabus for the Practical (Botany-102)**

1. Study of Selaginella: Morphology, Reproduction(Spore bearing organs) (Excluding anatomy)
2. Study of Cycas: Morphology, Reproduction (Spore bearing organs) Transfusion tissue in leaflet VS & Inverted Omega shaped arrangement of vascular bundle in Rachis TS (Excluding anatomy) through Class Work material & Permanent slides
3. Study of Root & Shoot apex through Chart/ Permanent slide
4. Study of normal secondary growth :- Sunflower Stem & Root (single stain)
5. Study of Nymphoea petiole (Ecological adoptive characters)
6. Study of Casuarina stem
7. Study of Avicennia leaf
8. Study through chart : Photosynthetic pigment containing structure (Chloroplast)
9. Demonstration practical of photosynthesis – NAMES of experiments
10. Demonstration practical of water relations (Osmosis, Diffusion, Imbibition & Plasmolysis)
11. To measure pH of given soil samples
12. Study of Medicinal plants as per theory
13. Study of Food plants as per theory
14. Study of Natural Rubber as per theory
15. Journal / Submission

**Tolani College of Arts & Science, Adipur - Kachchh**

F.Y. B.Sc. (Botany) Syllabus as CBCS System

**Semester II** (w.e.f. June 2016) **Botany: USCEBO - 202**

**Internal Practical Exam**

Total Marks: 20 Time:- 6 Hours

Ex.1 Identify and Describe specimen **A** 2

Ex.2 Identify, Describe, Prepare slide and show to the examiner **B** 3

Ex.3 Identify and Describe **C**  3

Ex.4 Demonstrate Experiment **D** 2

Ex.5 Identify and Describe the specimens 6

 Specimen-1

 Specimen-2

 Specimen-3

 Specimen-4

Ex.6 a) Viva voce/ Submission 2

b) Journal 2

**KSKV Kachchh University, Bhuj - Kachchh**

F.Y. B.Sc. (Botany) Syllabus as CBCS System

**Semester II** (w.e.f. June 2016) **Botany: USCEBO - 202**

**External Practical Exam**

Total Marks: 30 Time:- 6 Hours

Ex.1 Identify and Describe specimen **A** 4

Ex.2 Identify, Describe, Prepare slide and show to the examiner **B** 4

Ex.3 Identify and Describe **C** 4

Ex.4 Demonstrate Experiment **D** 4

Ex.5 Identify and Describe the specimens 8

 Specimen-1

 Specimen-2

 Specimen-3

 Specimen-4

Ex.6 a) Viva voce/ Submission 3

b) Journal 3

**Reference for the Semester-II Practical (Botany-102)**

Ex.1 Pteridophytes and Gymnosperm

Ex.2 Secondary growth

Ex.3 Ecology

Ex.4 Physiology and Biochemistry

Ex.5 Identify and Describe the specimens

 Specimen-1 Pteridophytes and Gymnosperm

 Specimen-2 Ecology, Physiology and Biochemistry

 Specimen-3 Economic Botany & Applied Botany

 Specimen-4 Economic Botany & Applied Botany

Ex.6 a) Viva voce/ Submission

b) Journal