



RAJARSHI SHAHU MAHAVIDYALAYA LATUR

(AUTONOMOUS)

AFFILATED TO

**SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY,
NANDED**

B. Sc. GENERAL (SEMESTER PATTERN)

B. Sc. FIRST YEAR (CBCS)

BOTANY – CURRICULUM

UNDER ACADEMIC AUTONOMOUS STATUS 2013 -2024

w. e. f. JUNE, 2022

OBJECTIVES

1. To know the importance and scope of the discipline.
2. To Inculcate interest in and love of nature with its myriad living forms.
3. To Impart knowledge of Science as the basic objective of Education.
4. To develop a scientific attitude to make students open minded, critical and curious.
5. To develop an ability to work on their own and to make them fit for the society.
6. To expose themselves to the diversity amongst life forms.
7. To develop skill in practical work, experiments, equipments and laboratory use along
with collection and interpretation of biological materials and data.
8. To Make aware of natural resources and environment and the importance of conserving it.
9. To develop ability for the application of the acquired knowledge in the fields of life so as
to make our country self reliant and self sufficient.
10. To Appreciate and apply ethical principles to biological science research and studies.
11. To enable the students to face NET, SET examinations.
12. To enable the students to face MPSC, UPSC and other competitive examinations
successfully.

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Rajarshi Shahu Mahavidyalaya (Autonomous), Latur

B. Sc. GENERAL (SEMESTER PATTERN)

B. Sc. FIRST YEAR (CBCS)

BOTANY – CURRICULUM

Sem ester	Paper No	Paper Title	Course Code	Marks		Total Mark	Lectures / practical	Credits
				In Sem. Evaluation	End Sem. Evaluation			
I	CC-I	Biodiversity of Cryptogams and Gymnosperms	U-BOT-159	20	30	45	50	02
	CC-II	Cell biology and Molecular biology	U-BOT-160	20	30	45	50	02
	Lab course -I	Practical bases on CC-I & II	U-BOT-161	20	30	15	50	02
II	CC-III	Histology Anatomy and Embryology of Angiosperms	U-BOT-260	20	30	45	50	02
	CC-IV	Fundamentals of Genetics	U-BOT-261	20	30	45	50	02
	Lab course -I	Practical based on CC –III & IV	U-BOT-262	20	30	15	50	02
						300		12

Workload:

1. Theory: Three Lectures / Paper / Week.

2. Practical: One practical (Three Lectures) / Batch / Week

Rajarshi Shahu Mahavidyalaya (Autonomous), Latur

B. Sc. General (Semester Pattern)

B. Sc. Second Year (CBCS)

Botany – Curriculum

Semester	Paper No.	Paper Title	Course Code	Marks		Total Marks	Lectures/Practicals	Credits
				In Sem. Evaluation	End Sem. Evaluation			
III	CC-V	Morphology and Taxonomy of Angiosperms	U-BOT-367	20	30	50	45	02
	CC-VI	Economic Botany and Pharmacognosy	U-BOT-368	20	30	50	45	02
	Lab. Course III	Based on CC –V	U-BOT-369	20	30	50	15	02
	Lab. Course IV	Based on CC –VI	U-BOT-370	20	30	50	15	02
	SEC-I	Nursery and Floriculture	U-ADC-334N	--	50	50	45	02
IV	CC-VII	Environmental Biology; Gardening and Land Scaping	U-BOT-467	20	30	50	45	02
	CC-VIII	Plant Breeding and Biotechnology	U-BOT-468	20	30	50	45	02
	Lab. Course-V	Based on CC –VII	U-BOT-469	20	30	50	15	02
	Lab. Course-VI	Based on CC–VIII	U-BOT-470	20	30	50	15	02
	SEC-II	Mushroom Cultivation Techniques	U-ADC 434M	--	50	50	45	02
					Total	500		20

Workload:

1. Theory: Three Lectures / Paper / Week.

2. Practical: One practical (Three Lectures) / Batch / Week

Rajarshi Shahu Mahavidyalaya (Autonomous), Latur

B. Sc. General (Semester Pattern)

B. Sc. Third Year (CBCS)

Botany – Curriculum

Semester	Paper No.	Paper Title	Course Code	Marks		Lectures/ Practicals	Total Marks	Credits
				In Sem. Evaluation	End Sem. Evaluation			
V	CC-IX	Plant Physiology and Metabolism	U-BOT-583	20	30	45	50	02
	DSE- I	Plant Pathology-I/Plant Biotechnology (DSE)	U-BOT-584	20	30	45	50	02
	Lab Course-VII	Based on CC – IX	U-BOT-585	20	30	15	50	02
	Lab Course-VIII	Based on DSE –I	U-BOT-586	20	30	15	50	02
	SEC-III	Fruits and Fruit Processing	U-ADC-540F	--	50	45	50	02
VI	CC-XI	Plant Biochemistry and Bioinformatics	U-BOT-683	20	30	45	50	02
	DSE- II	Plant Pathology-II / Cytogenetics (DSE)	U-BOT-684	20	30	45	50	02
	Lab Course -IX	Based on CC –XI	U-BOT-685	20	30	15	50	02
	Lab Course- X	Based on DSE-II	U-BOT-686	20	30	15	50	02
	SEC-IV	Basics in Horticulture	U-ADC-640H	--	50	45	50	02
					Total		500	20

Workload:

1. Theory: Three Lectures / Paper / Week.

2. Practical: One Practical (Three Lectures) / Batch / Week

In Sem. Evaluation: Theory: 5 Marks for attendance, 5 Marks for UT-I and 10 Mark for UT-2

Practical: 5 Marks for attendance, 10 Marks for record book and 5 Marks for overall performance

S. N. Shinde
Chairman

Board of studies in Botany

Rajarshi Shahu Mahavidyalaya (Autonomous), Latur

Rajarshi Shahu Mahavidyalaya (Autonomous), Latur
B. Sc. GENERAL (SEMESTER PATTERN)

B. Sc. FIRST YEAR (CBCS)

BOTANY – CURRICULUM

Sem ester	Paper No	Paper Title	Course Code	Marks		Total Mark	Lectures / practical	Credits
				In Sem. Evaluation	End Sem. Evaluation			
I	I	Biodiversity of Cryptogams and Gymnosperms	U-BOT-159	20	30	45	50	02
	II	Cell biology and Molecular biology	U-BOT-160	20	30	45	50	02
	Lab course -I	Practical bases on CC –I & II	U-BOT-161	20	30	15	50	02
II	III	Histology Anatomy and Embryology of Angiosperms	U-BOT-260	20	30	45	50	02
	IV	Fundamentals of Genetics	U-BOT-261	20	30	45	50	02
	Lab course -I	Practical based on CC –III & IV	U-BOT-262	20	30	15	50	02
							300	12

Workload:

1. Theory: Three Lectures / Paper / Week.

2. Practical: One practical (Three Lectures) / Batch / Week

Rajarshi Shahu Mahavidyalaya (Autonomous), Latur

B. Sc. First Year

Semester – I

BOTANY

CC -I: Biodiversity of Cryptogams and Gymnosperms

Periods – 45

Maximum Marks – 50

Credits-02

Course code U-BOT-159

OBJECTIVES:

1. To awaken the students about microbial world and the nature of diseases of plants.
2. To become familiar with algae and bryophytes
3. To develop the awareness about the importance of Viruses, Bacteria, Fungi, Lichens, Algae, Bryophytes, Pteridophytes
4. To learn the life cycles of, Fungi, Lichens, Algae, Bryophytes, Pteridophytes

Course outcomes:

1. Students are able to classify microorganism on the basis of host.
 2. Students are able to distinguish between reproductive stages of cryptogams.
 3. Students are able to study systematic position, thallus and occurrence of algae.
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UNIT – I: BACTERIA AND VIRUSES

(12 L)

Introduction:

A) BACTERIA:

1. General characters.
2. Size, Shape and Ultra structure.
3. Reproduction:
 - i. Asexual
 - ii. Genetic Recombination:
 - a. Conjugation
 - b. Transformation
 - c. Transduction
4. Economic importance.

B) VIRUSES:

1. General characters.
2. Classification
3. Viroids and Prions
4. Ultra structure of TMV.
5. Economic importance.

UNIT – II: FUNGI (10 L)

1. Introduction:

2. General characters and Classification (Alexopolous and Mims, 1979).
3. Reproduction and graphic life cycle of *Erysiphe*.
4. Economic importance.
5. Mycorrhiza (General characters)
6. Lichens: General characters, Types and Economic importance.

UNIT – III: ALGAE AND BRYOPHYTES (10 L)

Introduction

A) ALGAE:

1. General characters.
2. Classification (F.E. Fritsch, 1935).
3. Reproduction and graphic life cycle of *Chara*.
4. Economic importance

B) BRYOPHYTES:

1. General characters.
2. Classification (N.S. Parihar).
3. Reproduction, and graphic life cycle of (Developmental stages not expected) *Funaria*.
4. Economic importance

UNIT – IV: PTERIDOPHYTES AND GYMNOSPERMS (13 periods)

Introduction

A) PTERIDOPHYTES:

1. General characters.
2. Stellar Evolution
3. Classification (N.S. Parihar)
4. Reproduction and graphic life cycle with alternation of generations of (Developmental stages not expected) *Nephrolepis* (fern).
5. Economic importance

B) GYMNOSPERMS:

1. General characters.
2. Classification (Arnold, 1948).
3. Morphology of vegetative and reproductive structures (Developmental stages are not expected), and life cycle of *Cycas*.
4. Economic importance

Reference Books:

1. Trivedi, A. N. (2002) - Advances in Pteridology
2. Bierhorst, D.W. (1971) - Morphology of Vascular plants
3. Eames, A. J. and E. M. Giffard (1950) - Comparative morphology of vascular plants.
4. Rashid, A. (1978) - An introduction to Pteridophytes.
5. Sporne, K.R. (1966) - Morphology of Pteridophytes.
6. Bower, F. O. (1963) - The Ferns.
7. Jermy, A. G. (1973) - The Phylogeny and Classification of ferns.
8. Vashishta, B.R. (1996) - Botany for degree students – Pteridophytes.
9. Parihar, N.S. (1959) - An Introduction to Pteridophyta.
10. Arnold, C.A. (1972) - An introduction to paleobotany.
11. Darroh, W.C. (1968) - Principles of paleobotany.
12. Surange, K.R. (1968) - Indian Fossil Pteridophytes.
13. Arnold, C.A. (1947): Introduction to Palaeobotany, Mc-Graw HillBook Co. Inc., New York and London.
14. Pteridophytes and Gymnosperms, springer Verlag, New York
15. Biswas, C & Johri, B.N. (2004), The Gymnosperms, Narosa Publishing House, New Delhi.Coulter J.M. & Chamberlain C.J.(1978): Morphology of
16. Gymnosperms, Central Book Depot, Allahabad.
17. Kakkar, R.K.and Kakkar, B.R. (1995), the Gymnosperms (Fossils& Living), Central Publishing House, Allahabad.
18. Sharma O.P. (2002) Gymnosperms, Pragati Prakashan, Meerut.
19. Vashishta P.C., A.R. Sinha, Anil Kumar. 2006. Gymnosperms. S.Chand.
20. Vashishta P.C. 2006. Pteridophytes. S. Chand.
21. Parihar N.S. 1996. Biology and Morphology of Pteridophytes. Central Book Depot,Allahabad.

Rajarshi Shahu Mahavidyalaya (Autonomous), Latur

B. Sc. First Year

Semester – I

BOTANY

CC- II: Cell and Molecular Biology

Periods – 45 Maximum Marks – 50 Credits: 02 Course code: U-BOT-160

OBJECTIVES

1. To acquire good knowledge about cell biology
2. To acquire good knowledge about chemistry of active constituents of medicinal plants.
3. To know the techniques of Molecular biology.
4. To identify the different stages of cell division.

Course outcomes

- 1) Students are able to karyotype and Ideogram and their significance.
- 2) Students are able to distinguish between mitotic & meiosis.
- 3) Students are able to justify structural aspect of DNA & RNA.

UNIT –I: CELL BIOLOGY (13 L)

1. **Cell:** Ultra structure of Prokaryotic cell and Eukaryotic cell.
2. **Structure and functions of:** Cell wall and Plasma membrane.
3. **Structure and functions of cell organelles:** Nucleus, Golgi apparatus, Endoplasmic reticulum and Ribosome.
4. Structure of Flagella

UNIT –II: CHROMOSOME (10 L)

1. Organization of Chromosome (Nucleosome Solenoid Model).
2. Morphology, structure, function of typical chromosome and chemical composition of chromosome
3. Types of chromosome.
4. Giant chromosome: i. Polytene ii. Lambrush
5. Chromosomal Aberrations (structural and numerical).

UNIT –III: CELL DIVISION (10 L)

1. Cell cycle: Inter phase G₁ - S - G₂ - M phase and G₀ phase
2. Phases and significance of Mitosis.
3. Phases and significance of Meiosis.
4. Types of Meiosis.
5. Difference between Mitosis and Meiosis

UNIT –IV: MOLECULAR BIOLOGY (12 L)

1. Structure of DNA (Watson and Crick model).
2. Replication of DNA: Enzymes and their function used in it and Steps
3. Structure, function and types of RNA. (r –RNA, t-RNA, m-RNA,)
4. Properties of Genetic code
5. Protein synthesis: Enzymes and their function used in it and Steps

Reference Books:

1. Albert's B., Bray, D., Lewis, J., Raff, M., Roberts, K. and Watson, J. D. 1989
2. Molecular biology of the Cell (2nd edition). Garland Pub. Inc., New York.
3. Karp, G. 1999. Cells and Molecular Biology: Concepts & Experiments. John Wiley and Sons, Inc., USA.
4. Lodish S, Baltimore B, Berk, C and Lawrence K, 1995, Molecular Cell Biology ,3rd editions, Scientific American Books, N.Y
5. De Robertis and De Robertis, 1988, Cell and Molecular Biology, 8 edition, Info-Med, Hongkong.
6. Buchanan, Grissem and Jones, 2000, Biochemistry and Molecular Biology of Plants, American Soc. Plant Biologists, Waldorf
7. Lewin, B. 2000. GENE VII. Oxford University Press, New York, USA Cooper G M and Hausman R E, 2007, The Cell: Molecular Approach 4thEdn, Sinauer Associates, USA. Johnson Lewys – 2004: Cell Biology; Sarup and sons, New Delhi
8. E.J. Dupraw – 1970: Cell and Molecular Biology; Academic Press, London
9. De Robertis and De Robertis – 1997: Cell and Molecular Biology (VIII); B.I. Waverly Pvt. Ltd., New Delhi
10. C. P. Swanson, T. Merz, and W.J. Young – 1982: Cytogenetics ; Prentice – Hall of India Pvt. Ltd., New Delhi India
11. C. B. Powar – 1992: Cell Biology; Himalaya Publishing House.

Rajarshi Shahu Mahavidyalaya (Autonomous), Latur

B. Sc. First Year

Semester – I

BOTANY

Practical Paper-I: Practical based on CC- I & II

Periods – 45

Maximum Marks – 50

Credits-02

Course code U-BOT-161

Course outcomes

- 1) Students are able to identify the different microbes.
- 2) Students are able to identify the different types of algae, bryophyte etc.
- 3) Students are able to understand that the number of chromosome is characteristic of each species and can vary enormously between species.
- 4) Students are able to recognize that genetics is based on concept of genes as unit of inheritance.

Course outcomes

- 1) Students are able to identify, classify and describe cryptogams on the basis of external and reproductive features.
 - 2) Students are able to karyotype and Ideogram and their significance.
 - 3) Students are able to distinguish between mitotic & meiosis.
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Practical 1: Study of forms of Bacteria.

Practical 2: Study of external features of *Chara*.

Practical 3: Study of external features of *Erysiphe with* classification.

Practical 4: Study of types of Lichens (Crustose, Foliose and Fructicose).

Practical 5: Study of external and internal features of *Funaria*.

Practical 6: Study of external and internal features of *Nephrolepis*.

Practical 7: Study of external, internal and reproductive features of *Cycas*.

Practical 8: Study of cell organelles with the help of photocopies / slides

Practical 9: Study of mitosis (Onion/Garlic Root tips).

Practical 10: Study of Mitotic index (Onion/Garlic Root tips).

Practical 11-12: Study of Meiosis from onion floral buds or any other available material.

Practical 13: Study of karyotype and ideogram from photocopies of Onion / Aloe plant material.

Practical 14: Botanical excursions (one short excursion is compulsory)

Rajarshi Shahu Mahavidyalaya (Autonomous), Latur

B. Sc. First Year

Semester – II

BOTANY

CC-III: Histology, Anatomy and Embryology of Angiosperms

Periods – 45

Maximum Marks – 50 Credits: 02

Course code: U-BOT-260

OBJECTIVES

1. To awaken the students about Tissue system of plants.
2. To understand the process and concepts in plant Embryology.
3. To understand the relationships between pathogens and plants.
4. To become familiar with histology and anatomy of plants.
5. To learn the internal structures of plant organs.

Course outcomes:

- 1) Students will be able to differentiate various tissues.
 - 2) Students will be able to perform sectioning of various ovules.
 - 3) Developed approach for embryology study.
-

UNIT – I: HISTOLOGY (12 L)

Introduction: Plant Tissues

A. Meristematic tissues and their classification based on position

B. Permanent Tissues

I Simple Tissues:

1. Parenchyma
2. Collenchyma
3. Sclerenchyma

II Complex Tissues

1. Xylem
2. Phloem

III Secretory Tissues

1. Laticiferous Tissues

Ex. Latex cells

2. Glandular Tissues

a. External glands

Ex. Digestive glands

b. Internal glands

Ex. Oil glands

UNIT – II: ANATOMY (12 L)

1. Introduction:

2. Anatomy of dicot Stem (Sunflower).
3. Anatomy of monocot Stem (Maize).
4. Secondary growth in dicot stem.
5. Leaf anatomy of dicotyledons (Sunflower)
6. Leaf anatomy of monocotyledons (Maize).
7. Anomalous secondary growth in monocot stem (*Dracaena*).

UNIT –III: EMBRYOLOGY –I (11 L)

1. Introduction:

- 2 Structure of a Microsporangium (T.S. of anther).
3. Structure of a Microspore.
4. Development of male gametophyte (Microgametogenesis).
5. Structure of a Megasporangium.
6. Anatropous ovule
7. Types of ovule.
8. Development of female gametophyte (Monosporic).

UNIT – IV: EMBRYOLOGY –II (10 L)

1. Fertilization: Double Fertilization and its significance.
2. Post fertilization changes.
3. Endosperm and its types.
4. Development of dicot embryo (Crucifer type).
5. Structure of Dicot seed.
6. Structure of Monocot seed.

References:

1. **Briggs David 2009.** *Plant microevolution and Conservation in Human-influenced Ecosystems*. Cambridge University Press.
2. **Cronquist, A. 1981.** *An Integrated System of Classification of Flowering Plants* Columbia University Press, New York.
3. **Cronquist, A. 1988.** *The Evolution and Classification of Flowering Plants* (2nded.) Allen Press, U.S.A.
4. **Davis, P. H. and V. H. Heywood 1991.** *Principles of Angiosperm Taxonomy*. Today and Tomorrow Publications, New Delhi.
5. **Hutchinson, J. 1959.** *Families of Flowering plants*.
6. **Judd W. S., Campbell, C. S., Kellogg, E. A., Stevens P. F. and M. J. Donoghue 2008.** *Plant Systematics: A phylogenetic Approach*. Sunderland, Massachusetts,

USA.

7. **Lawrence George H. M. 1951** *Taxonomy of Vascular Plants*. Oxford and IBH Publ. Co. Pvt. Ltd. New Delhi.
8. **Leadlay E. and S. Jury (ed.) 2006.** *Taxonomy and Plant conservation*. Cambridge University Press.
9. **Manilal, K. S. and M. S. Muktesh Kumar [ed.] 1998.** *A Handbook of Taxonomic*
10. *Training*. DST, New Delhi.
11. **Naik, V. N. 1984.** *Taxonomy of Angiosperms*. Tata McGraw-Hill Publication Com. Ltd.
12. New Delhi
13. **Quicke, Donald, L. J. 1993.** *Principles and Techniques of Contemporary*
14. *Taxonomy*. Blakie Academic & Professional, London
15. **Takhtajan, A. 1962.** *Flowering plants- Origin and Dispersal*.
16. **Taylor, D. V. and L. J. Hickey 1997.** *Flowering Plants: Origin, Evolution and Phylogeny*. CBS Publishers & Distributers, New Delhi.

Rajarshi Shahu Mahavidyalaya (Autonomous), Latur

B. Sc. First Year

Semester – II

BOTANY

CC-IV: Fundamentals of Genetics

Periods – 45 Maximum Marks – 50 Credits: 02 Course code: U-BOT-261

OBJECTIVES:

1. To awaken the students about genetic terms.
2. To understand the principles of genetics and laws of inheritance.
3. To understand the relationships between epistatic and non epistatic genes.
4. To develop the awareness about genetic disorders

Course outcomes:

- 1) Students are able to develop understanding about inheritance Biology.
- 2) Students are able to Solved problems independently on Genetic disorder.
- 3) Students are able to understood Gene related diseases & its control.

UNIT –I: MENDELISM (10 L)

1. Introduction of Genetics
2. Mendel's experiments (biography of Mendel).
3. Genetic terminologies
4. Monohybrid crosses with examples.
5. Dihybrid cross with examples
6. Back cross and Test cross with examples.
7. Mendel's Laws of Inheritance.

UNIT –II: GENE INTERACTIONS (12 L)

1. Introduction

A. Allelic interactions:

1. Incomplete dominance with examples of 4 'O'clock plant.
2. Co- dominance with examples of coat color in cattle

B. Non-Allelic interactions

- I. **Epistatic:** Explanation and examples of
 - i) Dominant epistasis - 12:3:1 (Fruit colour in summer squash)
 - ii) Recessive epistasis - 9:3:4 (Supplementary genes)
(Grain colour in maize/coat colour in mice)
 - iii) Duplicate dominant epistasis - 15:1 (Seed capsule of Shepherds purse)
 - iv) Duplicate recessive epistasis - 9:7 (Complementary genes)
(Sweet pea flower color)
- II. **Non-epistatic:** Explanation and examples of
 - a) Collaborator gene - 9:3:3:1 (Comb shape in fowl)

UNIT –III: SEX DETERMINATION: (11 L)

1. Introduction

2. Sex determination: Discovery of sex chromosomes,
3. Chromosomal theory of sex determination.
4. Sex determination in Animals/ *Drosophila* (XX, XY method)
5. Sex determination in insects (XO-XX method),
6. Sex determination in Birds (*ZW-ZZ* method),
7. Sex determination in Plants (*Asparagus*).
8. Linkage: Definitions, significance, Coupling and repulsion hypothesis.

UNIT –IV: SEX LINKED INHERITANCE: (12 L)

1. Introduction: Definition

2. Types of Sex linked inheritance: i. X-linked with example
ii. Y-linked with example
iii. XY-linked with example

3. Sex linked inheritance in *Drosophila* (White eye colour)

4. Sex linked inheritance in Man: Hemophilia

5. Sex linked inheritance in Man: Colour blindness

6. Sex linked inheritance in Man: Hypertrochosis

7. Inheritance of bobbed bristles in *Drosophila*

8. Gene related diseases: i. Phenylketonuria (PKU)

ii. Alkaptonuria (AKU)

iii. Albinism.

9. Syndromes in Man:

i) Autosomal: Down's syndrome

ii) Chromosomal: Klinefelter's Syndrome.

References:

1. Alberts, B. Bray, D. Lewis, J. Raff, M. Roberts, K. and Watson, J. D. 1989. Molecular Biology (Ed.) Garland Publishing Inc. New York.
2. Atherl, A. G., Girton, J. R. and McDonald, J. F. 1999. The Science of Genetics. Saunders College USA.
3. Burnham, C. R. 1962. Discussions in Cytogenetics, Burgess Publishing Co., Minnesota.
4. Busch. H. and Rothblum, L. 1982 Volume X. The cell nucleus: DNA part A, Academic Press.

5. Hartl, D. L. and Jones E. W. 1998. Genetics: Principles and Analysis (4ih Ed.)
6. Jones and Barew Publishers, Massachusetts, USA.
7. Khush, G. S. 1973. Cytogenetics of Aneuploids, Academic Press, New York, London.
8. Karp, G. 1999. Cell and Molecular Biology; Concepts and Experiments, John Wiley and Sons Inc. USA.

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B. Sc. First Year

Semester – II

BOTANY

Practical Paper-II: Practical based on CC – III & IV

Periods – 45 Maximum Marks – 50 Credits: 02 Course code: U-BOT-262

OBJECTIVES:

1. Students are able to stand in clinic as genetics services.
2. Students identify the different types of genetic disorder.
3. Students Prepare independently permanent slides.

Course outcomes:

1. Students are able to differentiate types of tissues.
 2. Students are able to perform sectioning of various parts of plant
-

Practical 1: Study of meristematic and Simple Tissue with the help of Permanent slides /models/ Charts/photocopies.

Practical 2: Study of Complex and secretary tissue with the help of Permanent slides/models / Charts/photocopies.

Practical 3: Study of T.S. of Anther and types of ovule with the help of Permanent slides/models/ charts/photocopies.

Practical 4: Preparation of double stained permanent slides of Sunflower Stem.

Practical 5: Preparation of double stained permanent slides of Maize Stem.

Practical 6: Preparation of double stained permanent slides of Dracaena Stem.

Practical 7-12: Problems based on monohybrid/Dihybrid ratio; 9:7/12:3:1/15:1 and collaborator gene.

Practical 13-14: Problems based on sex-linked inheritance.

Practical 15-16: Botanical excursions (one long excursion is compulsory)

SKELETON OF QUESTION PAPER
B. Sc. First Year

Semester – I & II

Theory Paper-I, II, III and IV

Time: 1.30 hours

Maximum Marks: 30

Note: (i) Attempt all questions.

(ii) Draw neat and well labeled diagrams wherever necessary.

Q1. Attempt all of the following (Each 3 marks) 12

- a)
- b)
- c)
- d)

Q2. Attempt any ONE of the following 08

- a)
- b)

Q3. Attempt any ONE of the following 10

- a)
- b)

RAJARSHI SHAHU MAHA VIDYALAYA, LATUR

(Autonomous)



B.Sc. I PRACTICAL EXAMINATION IN BOTANY

SEE WINTER/SUMMER

Time: Three Hours

Maximum Marks: 30

Note: - (i) Attempt all questions.

(ii) Draw neat and well labeled diagrams wherever necessary.

Q. 1. Long answer type question.	10
Q. 2. Long answer type question.	10
Q. 3. Spotting: (02 spots)	05
Q. 4. Viva- Voce.	05

S.N. Shinde
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Board of Studies in Botany
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