

Samarth Mahavidyalaya Lakhni

Department Of Botany

Program Name:- B.sc Botany

Programme Outcomes:-

1. Demonstrate and apply the fundamental knowledge of the basic principles of major fields of biology.
2. Apply knowledge to solve the issues related to plant sciences with the help of computer technology.
3. Apply knowledge for conservation of endemic and endangered plant species.

Programme Specific Outcomes:-

1. Collaborate effectively on team-oriented in the field of life science.
2. Communicate scientific information in a clear and concise manner both orally and in writing.
3. Explain Biodiversity, climate change and plant pathology.
4. Apply Biotechnology, Ecology, Genetics and plant breeding techniques in plant sciences.
5. Apply knowledge of Medicinal and Economic botany in day to day life.
6. Apply the knowledge to develop the sustainable and eco-friendly technology in industrial Botany.

Samarth Mahavidyalaya Lakhani

Department of Botany (year 2018-2019)

Statements of Course Outcomes(CO):

B.Sc semester-1

Paper-1 (Viruses,Prokaryotes and Algae)

By end of this program, the students will acquire knowledge and they will understand the :-

1. Identify the bacteria, viruses and plant pathogen.
2. To know history nature and classification of viruses.
3. Student will understand types of bacteria, viruses and mycoplasma.
4. Student will able to describe Classification and general characteristic of Algae.
5. Student will describe life-cycle of micro organism and Algae like oedogonium, chara, vaucheria,ectocarpus etc.
6. Analyze economic importance of bacteria, virus and algae.
7. To know the structure of TMV, Bacteriophage ,Multiplication of T4.
8. Learn to comparison between archebacteria and eubacteria.

Paper-2 (Fungi,lichen,plant pathology,Bryophyta)

Course Outcomes:By the end of this course, the students will be able to:

1. Students understand Fungi ,Lichen, Plant diseases and Bryophytes.
2. Understand the Economic importance fungi, lichens and bryophytes.
3. Discuss the classification of fungi and Bryophytes.
4. Know about life cycle of albugo, Mucor, puccinia and cercospora.
5. Students learn to know pathogen of plants causes and there control such type of disease like red rot of sugarcane.
6. Compare lower group of plants with higher.

Botany practical examination-sem 1

By end of this program, the students will acquire knowledge and they will the understood

1. Student will understand working and precaution while handling microscope.
2. Understand the basic technique in lab e.g. Slide preparation and Section cutting.
3. Identify bacterial, cyanobacterial, algal, fungal lichens and Bryophytic plant.
4. Understand and identify the algal, bryophyte, fungal, plant pathology and lichens under natural habitat.
5. To know about the spotting occur during examination.

B.Sc semester-2

Paper:-1 (Pteridophyta and Gymnosperms)

By end of this program, the students will acquire knowledge and they will understand the :-

1. Explain the classification pteridophyta and gymnosperm.
2. Learn about the general characters of psilopsida, lycopsida, sphenopsida and pteropsida)
3. Describe the economic importance of pteridophyta.
4. Discuss morphology and anatomy of cycadeoidea.(morphology, anatomy of stem and flower).
5. Discuss the alternation of generation pteridophyta and gymnosperm.
6. Known about Pteridophyta rhynia, selaginella.

Paper-2 (Paleobotany and morphology of Angiosperms)

By end of this program, the students will acquire knowledge and they will the understood.

1. Understand the paleobotany and geological time scale.
2. Identify the different type of fossils.
3. Learn about type of fossils impression, compression, petrification.
4. Learn about root morphology like type root system and adventitious root, modification of storage.
5. Known about stem morphology and modification(runner, rhizome, tuber, bulb, cladode).
6. Student will describe vegetative and floral parts in scientific language.
7. Students will identify types of root, stem, leaves and flowers.
8. Compare the types inflorescence and fruits.

Botany practical examination-sem 2

Course Outcomes:By the end of this course, the students will be able to:

1. Students identify the different types of fossils.
2. Students will identify types of roots, stem, leaves, inflorescence, flower and fruits in the field visit.
3. Understand and Identify the morphological characters of plants in natural environment.
4. Identify the anatomy of plants material by making temporary mount.
5. Students will understand the structure of Enigmocarpon fruit.
6. Dicuss about of fossil history of lythraceae.

B.Sc semester-3

Paper-1 (Angiosperm Taxonomy)

By end of this program, the students will acquire knowledge and they will understand the :-

1. Learn about the origin of Angiosperms (benettialean theory) phylogeny og angiosperms
2. Understand the structure of flower – sahanianthus
3. Describe general taxonomic rule of plant classification.
4. Discuss the principal of botanical nomenclature.
5. Justify the merits and demerits of systems of classification.
6. Learn about the study of a families –malvaceae,brassicaceae, fabaceae
7. Acquire the basic knowledge of taxonomy.

Paper-2 (Cell biology,plant breeding and Genetics)

By end of this program, the students will acquire knowledge and they will understand the :-

1. Understand the structure and function of plasma membrane(fluid mosaic model), nucleus, endoplasmic Reticulum
2. Describe the structure of plant cell and its organelles.
3. Analyze the morphology of chromosome organization, including mitochondria and choloplasts.
4. Learn about sex chromosome, structure of sex chromosome in plants and cell division.
5. Evaluate the biostatic formulas.

6. .Understand the method of plants breeding.
7. Learn about Biostatistics mean, mode, median ,standard deviation, standard error and student t-test.
8. Discuss about origin of life(Millers theory).

Botany practical examination-sem 3

Course Outcomes:By the end of this course, the students will be able to

1. Analyze the floral formula of monocot and dicot families.
2. Perform the procedure of cytological techniques.
3. Understand and identify the plants under natural environment.
4. Understand about spotting include fossils angiosperms,cell organell,cytology and taxonomy.

B.Sc semester-4

Paper-1 (Anatomy and embryology of angiosperms)

By end of this program, the students will acquire knowledge and they will understand the :-

1. Classify the meristimatic and permanant tissue based on origin and position.
2. Discuss about permanent tissue and their function (parenchyma ,collenchymas, sclerenchyma).
3. Know the primary structure of root in dicot (sunflower) and (monocot).
4. Know the primary structure of stem in dicot (sunflower) and (monocot).
5. Understand primary, secondary and anomalous ,anatomical structure of plant parts.
6. Analyze the type of vascular bundle in plant cell.\
7. Discuss the secondary growth plant in bignonia and dracaena stem.
8. Understand the various types of pollination mechanism.
9. Explain the types of ovules, megasporogenesis, double fertilization and triple fusion.

Paper-2(Genetics and Molecular Biology)

By end of this program, the students will acquire knowledge and they will understand the :-

1. Describe the laws of mendelism included by law of segregation and independent assortment.
2. Summarize the theories of linkage coupling and repulsion theory ,significance.
3. Design and construct the variation in chromosome structure and number with significance.
4. Discuss the structure of B- DNA ,semi conservative mode of replication.
5. Discuss the types of mutations and its application in crop –improvement.
6. Learn a clover leaf model of T-RNA, genetic code, satellite and repetitive DNA.
7. Analyzed the regulation of lac operon.

Botany practical examination-sem 4

Course Outcomes:By the end of this course, the students will be able to:-

1. Learn to type of tissues ,types of vascular bundles.
2. Prepare to temporary mount of internal structure of dicot and monocot stem and root.
3. Perform double-stained permanent slide mounting.
4. .Solve the Mendel's law of inheritance through color beads.
5. Learn to know the prepare a permanent micropreparation –bignonia stem and dracaena stem.
6. Study the internal structure of leaves. Nerium and Maize.

B.Sc semester-5

Paper-1(Biochemistry and plant physiology -1)

By end of this program, the students will acquire knowledge and they will understand the :-

1. Classify and describe about biomolecular including carbohydrates, lipids, amino acids.
2. Learn to basic of enzymology, properties, factors ,apoenzyme , coenzyme, and its regulation.
3. Understand plant water relation. Write about mineral nutrients.
4. Understand mineral nutrition its role and deficiency symptoms of macro-micro nutrients(N,P,Fe,Mn,B,Ca).
5. Discuss aerobic respiration types ,respiration quotient, glycolysis, kreb's cycles, oxidative phosphorylation,fermentation and photorespiration.
6. Summerize the cycle of respiration and photosynthesis.

Paper-2(Plant Ecology-1)

Course Outcomes:By the end of this course, the students will be able to:-

1. Define and explain about ecology branches and its significance.
2. Summarize the environmental factors includes physiological factors.
3. Understand the role of ecosystem and its components, pyramids, autecology and all characters.
4. Compare the various Phytogeographic regions of india.
5. Student will explain the effect of climatic factors on vegetation.
6. Students will understand food chain,food web and ecological pyramids.
7. To determine the qualitative life forms of ecology.

Botany practical examination-sem 5

Course Outcomes:By the end of this course, the students will be able to:-

1. Perform major and minor physiology experiment.
2. Perform micro-chemical and bio-chemical test.
3. Understand ecological adaptations of plants.
4. Perform the spotting of biochemistry ecology of terrestrial ecosystem.
5. Given by viva voce .

B.Sc semester-6

Paper-1(Plant physiology 2 and Biotechnology)

By end of this program, the students will acquire knowledge and they will understand the :-

1. Describe the plant growth and its growth regulators.
2. Learn phytochrome pr,pfr values.
3. Discuss circadian rhythm and biological clock.
4. Students know the phytohormones and plant movements.
5. Describe the seed –dormancy,photoperiodism and plant defence mechanism.
6. Discuss plant tissue culture technique and its application.
7. Learn the genetic engineering with tools, DNA library.
8. Discuss the advantages and disadvantages of genetic-engineering.

Paper-2(Plant ecology, techniques and utilization of plants)

By end of this program, the students will acquire knowledge and they will understand the :-

1. Compare the various ecological successions, plant adaptation with morphological ,anatomical and physiological responses.
2. Discuss environmental pollution and other various causes with control measures with its managements.
3. Understand about the renewable and non-renewable natural sources.
4. Analyze the principal, types and application of instruments like microscopy, centrifugation, electrophoresis, spectroscopy and chromatography.
5. Explain morphology utilization and chemical-constituents of different plants.
6. Know the ethnobotany and its importance.

Botany practical examination- sem 6

Course Outcomes:By the end of this course, the students will be able to:-

1. Performs the seed viability and report findings.
2. Understand the ecological materials with report completion.
3. perform principles and working of instruments.
4. Study the electrophoretic/ chromatographic separation of amino acids and carbohydrates.
5. Study and applied the knowledge of spottings include ecology, biotechnology, utilization of plants.
6. Perform to give on practical viva voce.


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