



COMMISSIONERATE OF COLLEGIATE EDUCATION



Babu Jagjivan Ram Government Degree college

VITTALWADI, NARAYANGUDA, HYD

(Affiliated to Osmania University)

TEACHING LESSON PLAN

ACADEMIC YEAR 2019 – 2020

Name of the Department: BOTANY

NAME OF THE LECTURER: E.M.Sunitha

Course /Group: B.Sc Life Sciences

Subject / Paper : BOTANY I /SEM-I

Sl.No.	Subject	Paper	Page No.
1	Botany	I	1- 30

Teaching Plan/ Lesson No.01

Name of the Topic	Unit I : Archaea bacteria, Actinomycetes
Hours Required	2 Hours
Learning Objectives	Students get the knowledge of prokaryotic cell structure.
Previous knowledge to be reminded	Students recollect knowledge of bacterial cell structure, prokaryotic.
Examples /Illustrations	Bacterial cells structure, fungi thallus.
Additional inputs	Black board, PPT's Charts ,slides ,Comparison of Archaea bacteria, with bacteria.
Teaching Aids used	Participative and Experiential - Oral B.B teaching.ICT Teaching and Lab Work
References cited	Telugu akademi, vikas publications
Student Activity planned after the teaching	To study and collect information of Primitive characters of archaea bacteria and actinomycetes.
Student Activity planned outside the Classroom, if any	Slip test on Archaea bacteria, actinomycetes.
Any other activity	Nil
Topic Synopsis	<p>ARCHAEA BACTERIA : These organisms show the following features, whereas they differ from other bacteria.</p> <ol style="list-style-type: none"> 1. The cell walls do not contain peptidoglycan but the range of other unique polysaccharides are present. 2. The cell membrane is a single layer of glyco-hydro carbon glycerol chains instead of a bi layered phospholipids arranged tail to tail. 3. The RNA molecules are similar to each other. But differ greatly from those of other bacteria and eukaryotes. 4. The ribosomes of these organisms are intensive or chloramphenicol. 5. The first amino acid to initiate a new polypeptide chain is methionine, instead of N-formyl methionine. 6. These organisms inhabit extreme environments. They include methane. Producers, the red extreme halophiles and the thermoacidophiles. <p>MYCOPLASMAS:</p> <ol style="list-style-type: none"> 1. These are common in animals and humans. 2. Some members occur as saprobes in the soil, decaying organic matter and in the human oral cavity. 3. Cells are highly pleomorphic 4. They are gram-negative 5. Cells are devoid of cell walls and consist of only a plasma membrane.

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Teaching Plan/ Lesson No.02

Name of the Topic	Unit I :Cyanobacteria Oscillatoria, Nostoc, Anabaena.
Hours Required	6 hours
Learning Objectives	Students get the knowledge about Blue, green algae, cyanophycean members like oscillatoria, Nostoc, anabaena.
Previous knowledge to be reminded	Students recollect the knowledge of Blue, green algae, cyanophyceae.
Examples /Illustrations	Single cell protein, Blue-green algae like anabaena oscillatoria, Nostoc.
Additional inputs	. PPT's Charts ,slides: Economic importance and Preparation Spirulina Proteinaceous capsules
Teaching Aids used	Black board, Bio visual chart. PPT's ,slides
References cited	Telugu akademi, vivek publications
Student Activity planned after the teaching	To collect information and materials : Proteinaceous capsules spirulina is used as protein diet Microorganisms in Biotechnology.
Student Activity planned outside the Classroom, if any	Curricular Activity: Biofertilizer (Azolla Cultivation)
Any other activity	Nil
Topic Synopsis	<p>General Characters:</p> <ol style="list-style-type: none"> 1. Members of cyanobacteria are most widely distributed in fresh water, marine and terrestrial habitats. 2. Most of the species are fresh water forms a few like dermocarpa and Trichodesmium are marine They occur as phytoplanktons. blooms , epiphytes or as benthic formation. 3. Some species of nostoc and oscillatoria grow as endophytes in roots cycas, leaves of azolla and thalli of anthoceros. 4. Species of chroococcus, gloeocapsa, nostoc, scytonema and stigonema are the main algae component of lichens. 5. The cyanobacteria, growing in organically rich permanent waters form planktons. The polluted waters of lakes and ponds, exposed to suitable habitats for the growth of platonic blue greens. <p>Heterocysts are the modified vegetative cells. Depending on nitrogen concentration in the environment, heterocysts formation occurs.</p> <p>Presence of heterocyst makes the trichome work and trichome breaks at this point. Heterocysts stimulate the production of Akinetes.</p>

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Teaching Plan/ Lesson No.03

Name of the Topic	Unit I :Lichens
Hours Required	5 Hours
Learning Objectives	Pupils understand phycobiont and Mycobiont. Students compare functions of phycobiont and Mycobiont.
Previous knowledge to be reminded	Students recollect the knowledge about Algae and fungi.
Examples /Illustrations	Usnea, Dermatocarpon, cladonia.
Additional inputs	Information given on Pioneers of vegetation medicine, Dyes, Tanning & distilleries. PPT's Charts ,slides Lichens https://www.youtube.com/watch?v=4_cqm6kh0ns
Teaching Aids used	Blackboard, Bio visual chart. PPT's, slides ICT Teaching
References cited	Telugu Akademi, vivek Publications
Student Activity planned after the teaching	Assignment on lichens thallus structure reproduction in lichens.
Student Activity planned outside the Classroom, if any	External & Internal structure of lichens.
Any other activity	
Topic Synopsis	<ol style="list-style-type: none"> 1) Lichens have a composite thalloid structure. Formed by the association of algae and fungi. 2) On the basis of the structure of thallus lichens have been classified into three broad types. <ul style="list-style-type: none"> ● Crustose ● Foliose ● Fruticose lichens 3) On the basis of the fungal component, lichens are divided in to two types. <ul style="list-style-type: none"> ● Ascolichens ● Basidiolichens 4) Only fungal components of lichens is involved in sexual reproduction. 5) The female sex organ is known as corpogonium which is differentiated into a basal ascogonium and an elongated multicellular filament called the trichogyne. 6) The male sex organs are flask-shaped spermogonia found ohn the upper surface of the thallus They produce non-motile spermotia. 7) The fruit bodies of lichens are cup-shaped apotheir or flask-shaped pithecia. 8) The growth of lichens is very flow light, moderate or cold temperature , constant moisture and pure atmosphere favours their growth.

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Teaching Plan/ Lesson No.04

Name of the Topic	Unit I : Viruses
Hours Required	7 hours
Learning Objectives	Students understand the communicable diseases in human beings. Students get the knowledge of viruses.
Previous knowledge to be reminded	Students recollect the diseases caused by viruses.
Examples /Illustrations	Turnip yellow mosaic virus, polio virus, Influenza virus, Herpes virus.
Additional inputs	<u>iVirus Structure Classification</u> https://www.youtube.com/watch?v=wrm40f1UNQ
Teaching Aids used	Black board , Bio visual charts. PPT's, slides
References cited	Telugu akademi, vivek publications
Student Activity planned after the teaching	Transmission of plant viruses through vegetative propagation, seeds, soil, pollen grains.
Student Activity planned outside the Classroom, if any	Student seminar on reproduction/ Replication
Any other activity	
Topic Synopsis	<p>Viruses are sub. Microscopic particles.</p> <p>They are obligate parasites.</p> <p>They can multiply inside a living host cell.</p> <p>They contain either DNA or RNA as the genetic material.</p> <p>They exhibit variations due to mutations.</p> <p>They have no cell structure</p> <p>They do not show cellular metabolism.</p> <p>They remain as inert particles outside the host.</p> <p>The virus can be precipitated just like chemical substance Tobacco Mosaic Virus(TMV).</p> <p>The particles appear as bundles of rods of needles under electron microscopes. These particles have a protein coat and a nucleic acid core. The protein coat is made up of approximately 2130. identical protein subunits called capsomeres each capsomere consists of a single polypeptide chain of 158 amino acids and its molecular weight is 18000 daltons.</p>

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Teaching Plan/ Lesson No.05

Name of the Topic	Bacteria
Hours Required	8 hours
Learning Objectives	Students understand the structure and reproduction of Bacteria. Students compare bacterial cell structure with Prokaryotes.
Previous knowledge to be reminded	Students recollect the knowledge of prokaryotic cell structure.
Examples /Illustrations	Prokaryotic cell
Additional inputs	PPT's Charts ,slides Live material /Gram Staining of Bacteria https://www.youtube.com/watch?v=aWY05Emejn4 Bacterial structure and function https://www.youtube.com/watch?v=0TdQeTM0xec
Teaching Aids used	Black board, bio visual chart
References cited	Vivek text book ,Telugu Academy
Student Activity planned after the teaching	Students assignment;Draw the structure of Bacteria cell structure comparing cell structure with prokaryotic cell.
Student Activity planned outside the Classroom, if any	Curricular Activity: Activity: Gram Staining Demonstration
Any other activity	
Topic Synopsis	<p>1)They are omnipresent, found in all possible habitats, which can support life.</p> <p>2)Most of the bacteria have heterotrophic mode of nutrition i.eThey obtain their food directly from external sources. They live as saprophytes, parasites or symbionts.</p> <p>3)They are unicellular and morphologically least complex of all the living organisms.</p> <p>4) The cells may be spherical, cylinders or curved rods .</p> <p>5)The cell wall of bacteria is rigid and made up of two types of polymers.</p> <p>6)The cytoplasm is devoid of endoplasmic reticulum, Golgibodies, lysosomes mitochondria and vacuoles.</p> <p>7) Binary fission is the most common method of reproduction.</p> <p>8)True sexual Reproduction is absent.</p> <p>9)The motile bacteria possess one or more flagella composed of eight parallel chains of flagellin.</p> <p>10)Some gram negative bacteria possess minile hair-like cytoplasmic appendages known as pili, these appendages are composed of a protein called pilin or fimbrillin.</p>

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