Department: Botany

Teaching Plan: Year-2018-19

Class: F.Y.B.Sc.

Sr. No.	Topics	Month	Faculty name
1.	Paper-I U-I Algae Structure, Nostoc.	June-July	NDS
2.	Paper-I U-II Fungi Structure	June-July	SS
3.	Paper-I U-III Bryophyta General characters of Hepaticae	June-July	NDS
4.	Paper-II U-I Cell biology General structure of plant cell: cell wall	June-July	AYS
5.	Paper-II U-II Ecology Energy pyramids	June-July	PS
6.	Paper-II U-III Genetics Phenotype/Genotype	June-July	SC
7.	Paper-I U-I Algae life cycle and systematic position of Nostoc	July-August	NDS
8.	Paper-I U-II Fungi life cycle and systematic position of  Rhizopus	July-August	SS
9.	Paper-I U-III Bryophyta Structure of <i>Riccia</i>	July-August	NDS
10.	Paper-II U-I Cell biology General structure of plant cell: Plasma membrane	July-August	PS
11.	Paper-II U-II Ecology energy flow in an ecosystem.	July-August	SS
12.	Paper-II U-III Genetics Mendelian Genetics- monohybrid, dihybrid	July-August	sc
13.	Paper-I U-I Algae Structure of Spirogyra	August-September	Department of Bot Department of Maharashtri Pavernment of Maharashtri
14.	Paper-I U-II Fungi	August-September H	Parkernment of Maharasing Parkernment of Mah

Department: Botany Teaching Plan: Year-2018-19

Class: F.Y.B.Sc.

	life cycle and systematic position of Aspergillus		
15.	Paper-I U-III Bryophyta Lifecycle of <i>Riccia</i>	August-September	NDS
16.	Paper-II U-I Cell biology Ultra-structure and functions of the Endoplasmic reticulum	August-September	PS
17.	Paper-II U-II Ecology Aquatic ecosystem	August-September	SS
18.	Paper-II U-III Genetics Test cross, back cross ratios	August-September	SC
19.	Paper-I U-I Algae Economic importance of algae	September-October	NDS
20.	Paper-I U-II Fungi Economic importance of fungi and mode of nutrition in fungi	September-October	SS
21.	Paper-I U-III Bryophyta Systematic position of <i>Riccia</i>	September-October	NDS
22.	Paper-II U-I Cell biology Ultra-structure and functions of the chloroplast	September-October	PS
23.	Paper-II U-II Ecology Terrestrial ecosystem	September-October	SS
24.	Paper-II U-III Genetics Epistatic, non-epistatic interactions, multiple alleles	September-October	SC

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Department: Botany

Teaching Plan: Year-2018-19

#### Class: F.Y.B.Sc. Semester-II

Sr. no.	Topics	Months	Faculty name
1.	Paper-I U-I Pteridophytes General characters	November-December	SS
2.	Paper-I U-II Gymnosperms General characters	November-December	sc
3.	Paper-I U-III Angiosperms General characters	November-December	NDS
4.	Paper-II U-I Anatomy Simple tissues	November-December	AYS
5.	Paper-II U-II Physiology Photosynthesis: Light reaction	November-December	PS
6.	Paper-II U-III Medicinal botany Concept of primary and secondary metabolites	November-December	AKR
7.	Paper-I U-I Pteridophytes Lifecycle of Nephrolepis	December-January	ss
8.	Paper-I U-II Gymnosperms Lifecycle of Cycas	December-January	sc
9.	Paper-I U-III Angiosperms Leaf: simple leaf, types of compound leaves, Incisions of leaf, venation, phyllotaxy, types of stipules, leaf apex, leaf margin, leaf base, leaf shapes.	December-January	NDS
10.	Paper-II U-I Anatomy complex tissues	December-January	AYS
11.	Paper-II U-II Physiology Photosynthesis: photolysis of water	-December-January	PS
12.	Paper-II U-III Medicinal botany difference between primary and secondary metabolites	December-January	AKR AKAN DI BOTAN
13.	Paper-I U-I Pteridophytes systematic position of Nephrolepis	January-February	SS (Length White St. 400

Department: Botany Teaching Plan: Year-2018-19

Class: F.Y.B.Sc.

	Paper-I U-II	r. r.b.sc.	A STATE OF THE STATE OF
14.	Gymnosperms systematic position of <i>Cycas</i>	January-February	sc
15.	Paper-I U-III Angiosperms Modifications of leaf: spine, tendril, hooks, phyllode, pitcher, Drosera or insectivorous plants.	January-February	NDS
16.	Paper-II U-I Anatomy Primary structure of dicot and monocot root, stem and leaf.	January-February	AYS
17.	Paper-II U-II Physiology Photosynthesis: photophosphorylation	January-February	PS
18.	Paper-II U-III Medicinal botany Grandma's pouch: Following plants have to be studies with respect to botanical source, part of the plant used, active constituents present and medicinal uses: Oscimum sanctum, Adathoda vasica	January-February	AKR
19.	Paper-I U-I Pteridophytes alternation of generations in Nephrolepis	February-March	ss
20.	Paper-I U-II Gymnosperms alternation of generations in Cycas	February-March	sc
21.	Paper-I U-III Angiosperms Inflorescence: Racemose: simple raceme, spike, catkin, spadix, panicle. Cymose: monochasial, dichasial, polychasial. Compound: corymb, umbel, cyathium, capitulum, verticellaster, hypanthodium.	February-March	NDS
22.	Paper-II U-I Anatomy Epidermal tissue system: types of hair_	February-March	AYS
23.	Paper-II U-II Physiology Photosynthesis; €arbon fixation	February-March	PS of Botany

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Department: Botany Teaching Plan: Year-2018-19

Class: F.Y.B.Sc.

	Phase C3 & C4 cycle		
24.	Paper-II U-III Medicinal botany Grandma's pouch: Following plants have to be studies with respect to botanical source, part of the plant used, active constituents present and medicinal uses: Zinziber officinale, Curcuma longa	February-March	AKR
25.	Paper-I U-I Pteridophytes Stelar evolution	March-April	ss
26.	Paper-I U-II Gymnosperms Economic importance of Gymnosperms	March-April	sc
27.	Paper-I U-III Angiosperms Study of following families: Malvaceae, Amaryllidaceae.	March-April	NDS
28.	Paper-II U-I Anatomy Epidermal tissue system: monocot and dicot stomata.	March-April	AYS
29.	Paper-II U-II Physiology Photosynthesis: CAM pathways	March-April	PS
30.	Paper-II U-III Medicinal botany Grandma's pouch: Following plants have to be studies with respect to botanical source, part of the plant used, active constituents present and medicinal uses: Santalum album, Aloe vera	March-April	AKR

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Class: F.Y.B.Sc.

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Department: Botany

Teaching Plan: Year-2019-20

Class: F.Y.B.Sc.

Sr. No.	Topics	Month	Faculty name
1,	Paper-I U-I Algae Structure, Nostoc.	June-July	NDS
2.	Paper-I U-II Fungi Structure	June-July	SS
3.	Paper-I U-III Bryophyta General characters of Hepaticae	June-July	NDS
4.	Paper-II U-I Cell biology General structure of plant cell: cell wall	June-July	AYS
5.	Paper-II U-II Ecology Energy pyramids	June-July	PS
6.	Paper-II U-III Genetics Phenotype/Genotype	June-July	SC
7.	Paper-I U-I Algae life cycle and systematic position of Nostoc	July-August	NDS
8.	Paper-I U-II Fungi life cycle and systematic position of Rhizopus	July-August	SS
9.	Paper-I U-III Bryophyta Structure of Riccia	July-August	NDS
10.	Paper-II U-I Cell biology General structure of plant cell: Plasma membrane	July-August	PS
11.	Paper-II U-II Ecology energy flow in an ecosystem.	July-August	SS
12.	Paper-II U-III Genetics Mendelian Genetics- monohybrid, dihybrid	July-August	sc
13.	Paper-I U-I Algae Structure of Spirogyra	COMMITTEE	partment of Botany ment of Maharashtra's
14.	Paper-I U-II Fungi		ail Y95ut College Science & Commerce, Science & Mumbai - 400 060

Department: Botany

Teaching Plan: Year-2019-20

Class: F.Y.B.Sc.

	life cycle and systematic position of Aspergillus	14 56 41	
15.	Paper-I U-III Bryophyta Lifecycle of <i>Riccia</i>	August-September	NDS
16.	Paper-II U-I Cell biology Ultra-structure and functions of the Endoplasmic reticulum	August-September	PS
17.	Paper-II U-II Ecology Aquatic ecosystem	August-September	SS
18.	Paper-II U-III Genetics Test cross, back cross ratios	August-September	SC
19.	Paper-I U-I Algae Economic importance of algae	September-October	NDS
20.	Paper-I U-II Fungi Economic importance of fungi and mode of nutrition in fungi	September-October	SS
21.	Paper-I U-III Bryophyta Systematic position of <i>Riccia</i>	September-October	NDS
22.	Paper-II U-I Cell biology Ultra-structure and functions of the chloroplast	September-October	PS
23.	Paper-II U-II Ecology Terrestrial ecosystem	September-October	SS
24.	Paper-II U-III Genetics Epistatic, non-epistatic interactions, multiple alleles	September-October	SC

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Department: Botany

Teaching Plan: Year-2019-20

#### Class: F.Y.B.Sc. Semester-II

Sr. no.	Topics	Months	Faculty name
100	Paper-I U-I		Rengile
1.	Pteridophytes	November-December	SS
	General characters		
4	Paper-I U-II		
2.	Gymnosperms	November-December	SC
	General characters	A MINERAL DESCRIPTION	
	Paper-I U-III		
3.	Angiosperms	November-December	NDS
	General characters	March Control	The state of the s
	Paper-II U-I		
4.	Anatomy	November-December	AYS
Will	Simple tissues	The second of th	
No.	Paper-II U-II	Note to the latest	
5.	Physiology	November-December	PS
02910	Photosynthesis: Light reaction	The state of the s	
100	Paper-II U-III		
_	Medicinal botany		
6.	Concept of primary and secondary	November-December	AKR
	metabolites	MICHIGAN STATE	
1	Paper-I U-I		
7.	Pteridophytes	December-January	SS
	Lifecycle of Nephrolepis	December January	
	Paper-I U-II		
8.	Gymnosperms	December-January	SC
	Lifecycle of Cycas	December-January	
	Paper-I U-III		
	Angiosperms		AL STATE OF THE ST
	Leaf: simple leaf, types of compound		NDS
9.	leaves, Incisions of leaf,	December-January	
	venation, phyllotaxy, types of stipules,		
	leaf apex, leaf margin, leaf		
	base, leaf shapes.		
	Paper-II U-I		
10.	Anatomy	December-January	AYS
	complex tissues		
	Paper-II U-II		
11.	Physiology	December-January	PS
	Photosynthesis: photolysis of water		
17 33	Paper-II U-III	The same of the same of	
	Medicinal botany		
12.	difference	December-January	AKR
	between primary and secondary		1,250
	metabolites		A-
-200	Paper-I U-I		der
13.	Ptéridophytes	January-February	SS
	systematic position of Nephrolepis	Head Departs Government of	ment of Botany

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Teaching Plan: Year-2019-20

Class: F.Y.B.Sc.

	Citati	1.1.15.50.	
14.	Paper-I U-II Gymnosperms systematic position of Cycas	January-February	SC
15.	Paper-I U-III Angiosperms Modifications of leaf: spine, tendril, hooks, phyllode, pitcher, Drosera or insectivorous plants.	January-February	NDS
16.	Paper-II U-I Anatomy Primary structure of dicot and monocot root, stem and leaf.	January-February	AYS
17.	Paper-II U-II Physiology Photosynthesis: photophosphorylation	January-February	PS
18.	Paper-II U-III Medicinal botany Grandma's pouch: Following plants have to be studies with respect to botanical source, part of the plant used, active constituents present and medicinal uses: Oscimum sanctum, Adathoda vasica	January-February	AKR
19.	Paper-I U-I Pteridophytes alternation of generations in Nephrolepis	February-March	SS
20.	Paper-I U-II Gymnosperms alternation of generations in Cycas	February-March	sc
21.	Paper-I U-III Angiosperms Inflorescence: Racemose: simple raceme, spike, catkin, spadix, panicle. Cymose: monochasial, dichasial, polychasial. Compound: corymb, umbel, cyathium, capitulum, verticellaster, hypanthodium.	February-March	NDS
22.	Paper-II U-I Anatomy Epidermal tissue system: types of hair	February-March	AYS
23.	Paper-II U-II - Physiology Photosynthesis: carbon fixation	February-March	PS TANKED TO THE PS TAN

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Department: Botany Teaching Plan: Year-2019-20

Class: F.Y.B.Sc.

	Phase C3 & C4 cycle		
24.	Paper-II U-III Medicinal botany Grandma's pouch: Following plants have to be studies with respect to botanical source, part of the plant used, active constituents present and medicinal uses: Zinziber officinale, Curcuma longa	February-March	AKR
25.	Paper-I U-I Pteridophytes Stelar evolution	March-April	ss
26.	Paper-I U-II Gymnosperms Economic importance of Gymnosperms	March-April	sc
27.	Paper-I U-III Angiosperms Study of following families: Malvaceae, Amaryllidaceae.	March-April	NDS
28.	Paper-II U-I Anatomy Epidermal tissue system: monocot and dicot stomata.	March-April	AYS
29.	Paper-II U-II Physiology Photosynthesis: CAM pathways	March-April	PS
30.	Paper-II U-III Medicinal botany Grandma's pouch: Following plants have to be studies with respect to botanical source, part of the plant used, active constituents present and medicinal uses: Santalum album, Aloe vera	March-April	AKR

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Class: F.Y.B.Sc.

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Department: Botany

Teaching Plan: Year-2020-21

Class: F.Y.B.Sc.

Sr. No.	Topics	Month	Faculty name
1.	Paper-I U-I Algae Structure, Nostoc.	June-July	NDS
2.	Paper-I U-II Fungi Structure	June-July	SS
3.	Paper-I U-III Bryophyta General characters of Hepaticae	June-July	NDS
4.	Paper-II U-I Cell biology General structure of plant cell: cell wall	June-July	AYS
5.	Paper-II U-II Ecology Energy pyramids	June-July	PS
6.	Paper-II U-III Genetics Phenotype/Genotype	June-July	SC
7.	Paper-I U-I Algae life cycle and systematic position of Nostoc	July-August	NDS
8.	Paper-I U-II Fungi life cycle and systematic position of Rhizopus	July-August	SS
9.	Paper-I U-III Bryophyta Structure of <i>Riccia</i>	July-August	NDS
10.	Paper-II U-I Cell biology General structure of plant cell: Plasma membrane	July-August	PS
11.	Paper-II U-II Ecology energy flow in an ecosystem.	July-August	SS
12.	Paper-II U-III Genetics Mendelian Genetics- monohybrid, dihybrid	July-August	sc ~~V
13.	Paper-I U-I Algae Structure of Spirogyra	Covernment	nos ment of Botany of Maharashtra's
14.	Paper-I U-II Fungi	August-Septemberill Ytt Arts, Sciem	e & Commerce, A Numbal - 400 660.

Department: Botany Teaching Plan: Year-2020-21

Class: F.Y.B.Sc.

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	life cycle and systematic position of Aspergillus		
15.	Paper-I U-III Bryophyta Lifecycle of <i>Riccia</i>	August-September	NDS
16.	Paper-II U-I Cell biology Ultra-structure and functions of the Endoplasmic reticulum	August-September	PS
17.	Paper-II U-II Ecology Aquatic ecosystem	August-September	SS
18.	Paper-II U-III Genetics Test cross, back cross ratios	August-September	SC
19.	Paper-I U-I Algae Economic importance of algae	September-October	NDS
20.	Paper-I U-II Fungi Economic importance of fungi and mode of nutrition in fungi	September-October	SS
21.	Paper-I U-III Bryophyta Systematic position of <i>Riccia</i>	September-October	NDS
22.	Paper-II U-I Cell biology Ultra-structure and functions of the chloroplast	September-October	PS
23.	Paper-II U-II Ecology Terrestrial ecosystem	September-October	SS
24.	Paper-II U-III Genetics Epistatic, non-epistatic interactions, multiple alleles	September-October	SC

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Department: Botany

Teaching Plan: Year-2020-21

Class: F.Y.B.Sc. Semester-II

Sr. no.	Topics	Months	Faculty name
	Paper-I U-I		No. 12 Person
1.	Pteridophytes General characters	November-December	55
	Paper-i U-II	TEACH PARTY AND THE	
2.	Gymnosperms General characters	November-December	SC
513	Paper-I U-III		WITH BERNER
3.	Angiosperms General characters	November-December	NDS
	Paper-II U-I		
4.	Anatomy	November-December	AYS
	Paper-II U-II		
5.	Physiology	November-December	PS
	Photosynthesis: Light reaction		THE PLANE
	Paper-II U-III Medicinal botany		
6.	Concept of primary and secondary	November-December	AKR
= 201	metabolites		
7.	Paper-I U-I	Describes to	
"	Pteridophytes Lifecycle of Nephrolepis	December-January	SS
	Paper-I U-II		
8.	Gymnosperms	December-January	SC
	Lifecycle of Cycas Paper-I U-III		
	Angiosperms		
9.	Leaf: simple leaf, types of compound		
9.	leaves, Incisions of leaf, venation, phyllotaxy, types of stipules,	December-January	NDS
	leaf apex, leaf margin, leaf		
	base, leaf shapes.		
10.	Paper-II U-I Anatomy	December-January	AVC
	complex tissues	December-January	AYS
	Paper-II U-II		
11.	Physiology Photosynthesis: photolysis of water	December-January	PS
	Paper-II U-III		
FIRE	Medicinal botany		
12.	difference	December-January	AKR
	between primary and secondary metabolites	244	4
**	Paper-I U-I	×.	market f
13.	Pteridophytes	January-February	SS
	systematic position of Nephrolepis		

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Department: Botany

Teaching Plan: Year-2020-21

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Class:	F.	Υ.	В.	SC.

14.	Paper-I U-II Gymnosperms systematic position of Cycas	January-February	sc
15.	Paper-I U-III Angiosperms Modifications of leaf: spine, tendril, hooks, phyllode, pitcher, Drosera or insectivorous plants.	January-February	NDS
16.	Paper-II U-I Anatomy Primary structure of dicot and monocot root, stem and leaf.	January-February	AYS
17.	Paper-II U-II Physiology Photosynthesis: photophosphorylation	January-February	PS
18.	Paper-II U-III Medicinal botany Grandma's pouch: Following plants have to be studies with respect to botanical source, part of the plant used, active constituents present and medicinal uses: Oscimum sanctum, Adathoda vasica	January-February	AKR
19.	Paper-I U-I Pteridophytes alternation of generations in Nephrolepis	February-March	SS
20.	Paper-I U-II Gymnosperms alternation of generations in Cycas	February-March	SC
21.	Paper-I U-III Angiosperms Inflorescence: Racemose: simple raceme, spike, catkin, spadix, panicle. Cymose: monochasial, dichasial, polychasial. Compound: corymb, umbel, cyathium, capitulum, verticellaster, hypanthodium.	February-March	NDS
22.	Paper-II U-I Anatomy Epidermal tissue system: types of hair	February-March	AYS
23.	Paper-II U-II Physiology Photosynthesis: carbon fixation	February-March	PS

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Teaching Plan: Year-2020-21

Class: F.Y.B.Sc.

	Phase C3 & C4 cycle	. F. I .D.Sc.	(A) = 1 (A) = 3 (A) (A)
24.	Paper-II U-III Medicinal botany Grandma's pouch: Following plants have to be studies with respect to botanical source, part of the plant used, active constituents present and medicinal uses: Zinziber officinale, Curcuma longa	February-March	AKR
25.	Paper-I U-I Pteridophytes Stelar evolution	March-April	SS
26.	Paper-I U-II Gymnosperms Economic importance of Gymnosperms	March-April	sc
27.	Paper-I U-III Angiosperms Study of following families: Malvaceae, Amaryllidaceae.	March-April	NDS
28.	Paper-II U-I Anatomy Epidermal tissue system: monocot and dicot stomata.	March-April	AYS
29.	Paper-II U-II Physiology Photosynthesis: CAM pathways	March-April	PS
30.	Paper-II U-III Medicinal botany Grandma's pouch: Following plants have to be studies with respect to botanical source, part of the plant used, active constituents present and medicinal uses: Santalum album, Aloe vera	March-April	AKR

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Department: Botany Teaching Plan: Year-2020-21

Class: F.Y.B.Sc.

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Department: Botany

Teaching Plan: Year-2021-22

Class: F.Y.B.Sc.

Sr. No.	Topics	Month	Faculty name
	Paper-I U-I Algae Structure, Nostoc.	June-July	NDS
2.	Paper-I U-II Fungi Structure	June-July	SS
3.	Paper-I U-III Bryophyta General characters of Hepaticae	June-July	NDS
4.	Paper-II U-I Cell biology General structure of plant cell: cell wall	June-July	AYS
5.	Paper-II U-II Ecology Energy pyramids	June-July	PS
6.	Paper-II U-III Genetics Phenotype/Genotype	June-July	SC
7.	Paper-I U-I Algae life cycle and systematic position of Nostoc	July-August	NDS
8.	Paper-I U-II Fungi life cycle and systematic position of Rhizopus	July-August	SS
9.	Paper-I U-III Bryophyta Structure of <i>Riccia</i>	July-August	NDS
10.	Paper-II U-I Cell biology General structure of plant cell: Plasma membrane	July-August	ST
11.	Paper-II U-II Ecology energy flow in an ecosystem.	July-August	SS
12.	Paper-II U-III Genetics Mendelian Genetics- monohybrid, dihybrid	July-August	SC
13.	Paper-I U-I Algae Structure of <i>Spirogyra</i>	August-September	ent of Botan
14.	Paper-I U-II Fungi	August-Septemberent of	t College of

Department: Botany Teaching Plan: Year-2021-22

Class: F.Y.B.Sc.

	life cycle and systematic position of Aspergillus		
15.	Paper-I U-III Bryophyta Lifecycle of <i>Riccia</i>	August-September	NDS
16.	Paper-II U-I Cell biology Ultra-structure and functions of the Endoplasmic reticulum	August-September	PS
17.	Paper-II U-II Ecology Aquatic ecosystem	August-September	SS
18.	Paper-II U-III Genetics Test cross, back cross ratios	August-September	SC
19.	Paper-I U-I Algae Economic importance of algae	September-October	NDS
20.	Paper-I U-II Fungi Economic importance of fungi and mode of nutrition in fungi	September-October	SS
21.	Paper-I U-III Bryophyta Systematic position of <i>Riccia</i>	September-October	NDS
22.	Paper-II U-I Cell biology Ultra-structure and functions of the chloroplast	September-October	PS
23.	Paper-II U-II Ecology Terrestrial ecosystem	September-October	SS
24.	Paper-II U-III Genetics Epistatic, non-epistatic interactions, multiple alleles	September-October	SC

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Department: Botany

Teaching Plan: Year-2021-22

#### Class: F.Y.B.Sc. Semester-II

Sr. no.	Topics	Months	Faculty name
	Paper-I U-I		
1.	Pteridophytes	November-December	SS
	General characters		
	Paper-I U-II		
2.	Gymnosperms	November-December	sc
	General characters	The state of the s	120
D. File	Paper-I U-III		
3.	Angiosperms	November-December	NDS
	General characters	Hovember Becember	1003
-	Paper-II U-I		
4.	Anatomy	November-December	AYS
	Simple tissues	Movember-December	nis
	Paper-II U-II		
5.	Physiology	Name by December	
Tit	A CONTRACTOR OF THE PARTY OF TH	November-December	ST
	Photosynthesis: Light reaction Paper-II U-III		
	Medicinal botany		
6.		November-December	AKR
	Concept of primary and secondary metabolites		
7	Paper-I U-I	2000	4
7.	Pteridophytes	December-January	SS
-	Lifecycle of Nephrolepis		
	Paper-I U-II	State of the second	
8.	Gymnosperms	December-January	SC
	Lifecycle of Cycas	AND THE PERSON NAMED IN	
	Paper-I U-III		
	Angiosperms		
	Leaf: simple leaf, types of compound		NDS
9.	leaves, Incisions of leaf,	December-January	
	venation, phyllotaxy, types of stipules,		
	leaf apex, leaf margin, leaf		
	base, leaf shapes.	COLUMN TO SERVICE	
	Paper-II U-I		
10.	Anatomy	December-January	AYS
	complex tissues		
	Paper-II U-II		Land Control
11.	Physiology	December-January	PS .
	Photosynthesis: photolysis of water		
	Paper-II U-III		
	Medicinal botany	e and henry	
12.	difference	December-January	AKR
	between primary and secondary		4
	metabolites	NI	1
416	Paper-I U-I	20	meta91
13.	Pteridophytes	January-February	SS
	systematic position of Nephrolepis	THE PARTY OF THE P	0
		The state of the s	ALL DESCRIPTION OF THE PARTY OF
		John Suntan (Carry)	100
		potition of march	
		1000 1000	

Department: Botany

Teaching Plan: Year-2021-22

Class: F.Y.B.Sc.

	Citado, i	7.1.101.041	
14.	Paper-I U-II Gymnosperms systematic position of Cycas	January-February	sc
15.	Paper-I U-III Angiosperms Modifications of leaf; spine, tendril, hooks, phyllode, pitcher, Drosera or insectivorous plants.	January-February	NDS
16.	Paper-II U-I Anatomy Primary structure of dicot and monocot root, stem and leaf.	January-February	AYS
17.	Paper-II U-II Physiology Photosynthesis: photophosphorylation	January-February	PS
18.	Paper-II U-III Medicinal botany Grandma's pouch: Following plants have to be studies with respect to botanical source, part of the plant used, active constituents present and medicinal uses: Oscimum sanctum, Adathoda vasica	January-February	AKR
19.	Paper-I U-I Pteridophytes alternation of generations in Nephrolepis	February-March	SS
20.	Paper-I U-II Gymnosperms alternation of generations in Cycas	February-March	sc
21.	Paper-I U-III Angiosperms Inflorescence: Racemose: simple raceme, spike, catkin, spadix, panicle. Cymose: monochasial, dichasial, polychasial. Compound: corymb, umbel, cyathium, capitulum, verticellaster, hypanthodium.	February-March	NDS
22.	Paper-II U-I Anatomy Epidermal tissue system: types of hair	February-March	AYS
23.	Paper-II U-II Physiology Photosynthesis: carbon fixation	February-March	coment of Botany

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Department: Botany

Teaching Plan: Year-2021-22

Class: F.Y.B.Sc.

	Phase C3 & C4 cycle		
24.	Paper-II U-III Medicinal botany Grandma's pouch: Following plants have to be studies with respect to botanical source, part of the plant used, active constituents present and medicinal uses: Zinziber officinale, Curcuma longa	February-March	AKR
25.	Paper-I U-I Pteridophytes Stelar evolution	March-April	SS
26.	Paper-I U-II Gymnosperms Economic importance of Gymnosperms	March-April	sc
27.	Paper-I U-III Angiosperms Study of following families: Malvaceae, Amaryllidaceae.	March-April	NDS
28.	Paper-II U-I Anatomy Epidermal tissue system: monocot and dicot stomata.	March-April	AYS
29.	Paper-II U-II Physiology Photosynthesis: CAM pathways	March-April	PS
30.	Paper-II U-III Medicinal botany Grandma's pouch: Following plants have to be studies with respect to botanical source, part of the plant used, active constituents present and medicinal uses: Santalum album, Aloe vera	March-April	AKR

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Class: F.Y.B.Sc.

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Department: Botany

Teaching Plan: Year-2022-23

Class: F.Y.B.Sc.

Sr. No.	Topics	Month	Faculty name
1.	Paper-I U-I Algae Structure, Nostoc.	June-July	NDS
2.	Paper-I U-II Fungi Structure	June-July	SS
3.	Paper-I U-III Bryophyta General characters of Hepaticae	June-July	NDS
4.	Paper-II U-I Cell biology General structure of plant cell: cell wall	June-July	AYS
5.	Paper-II U-II Ecology Energy pyramids	June-July	PS
6.	Paper-II U-III Genetics Phenotype/Genotype	June-July	ST
7.	Paper-I U-I Algae life cycle and systematic position of Nostoc	July-August	NDS
8.	Paper-I U-II Fungi life cycle and systematic position of Rhizopus	July-August	SS
9.	Paper-I U-III Bryophyta Structure of <i>Riccia</i>	July-August	NDS
10.	Paper-II U-I Cell biology General structure of plant cell: Plasma membrane	July-August	PS
11.	Paper-II U-II Ecology energy flow in an ecosystem.	July-August	SS
12.	Paper-II U-III Genetics Mendelian Genetics- monohybrid, dihybrid	July-August	SC
13.	Paper-I U-I Algae Structure of <i>Spirogyra</i>	August-September	NDS NDS
14.	Paper-I U-II Fungi	August September	ment of Botany Maharashtra's uff College of

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Department: Botany

Teaching Plan: Year-2022-23

Class: F.Y.B.Sc.

	life cycle and systematic position of Aspergillus		
15.	Paper-I U-III Bryophyta Lifecycle of <i>Riccia</i>	August-September	NDS
16.	Paper-II U-I Cell biology Ultra-structure and functions of the Endoplasmic reticulum	August-September	PS
17.	Paper-II U-II Ecology Aquatic ecosystem	August-September	SS
18.	Paper-II U-III Genetics Test cross, back cross ratios	August-September	SC
19.	Paper-I U-I Algae Economic importance of algae	September-October	NDS
20.	Paper-I U-II Fungi Economic importance of fungi and mode of nutrition in fungi	September-October	SS
21.	Paper-I U-III Bryophyta Systematic position of <i>Riccia</i>	September-October	NDS
22.	Paper-II U-I Cell biology Ultra-structure and functions of the chloroplast	September-October	PS
23.	Paper-II U-II Ecology Terrestrial ecosystem	September-October	SS
24.	Paper-II U-III Genetics Epistatic, non-epistatic interactions, multiple alleles	September-October	SC

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Department: Botany

Teaching Plan: Year-2022-23

Class: F.Y.B.Sc. Semester-II

Sr. no.	Topics	Months	Faculty name
	Paper-I U-I		I STELL TO SELLE
1.	Pteridophytes	November-December	SS
	General characters		
	Paper-I U-II		
2.	Gymnosperms	November-December	SC
	General characters	THE REAL PROPERTY.	
	Paper-I U-III		
3.	Angiosperms	November-December	NDS
	General characters		1000
	Paper-II U-I	The second second	
4.	Anatomy	November-December	AYS
	Simple tissues		400000
-	Paper-II U-II		
5.	Physiology	November-December	PS
	Photosynthesis: Light reaction		Maria Committee
	Paper-II U-III		BEST STATE
6.	Medicinal botany	November-December	AVO
0.	Concept of primary and secondary	November-December	AKR
	metabolites		
	Paper-I U-I		
7.	Pteridophytes	December-January	SS
	Lifecycle of Nephrolepis		
	Paper-I U-II		
8.	Gymnosperms	December-January	SC
	Lifecycle of Cycas		
	Paper-I U-III		
	Angiosperms		THE SECOND SECOND
	Leaf: simple leaf, types of compound		NDS
9.	leaves, Incisions of leaf,	December-January	
	venation, phyllotaxy, types of stipules,		
	leaf apex, leaf margin, leaf		Maria Maria
	base, leaf shapes.		
	Paper-II U-I		
10.	Anatomy	December-January	AYS
	complex tissues		
	Paper-II U-II		
11.	Physiology	December-January	PS
	Photosynthesis: photolysis of water		
	Paper-II U-III		
	Medicinal botany		
12.	difference	December-January	AKR
	between primary and secondary	1	and an early
	metabolites	Mari	
	Paper-I U-I	4	r noteny
13.	Pteridophytes	January-February men	95 Butany
	systematic position of Nephrolepis	Head Department of Ma	CLASS CONTRACTOR OF THE PARTY O

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Department: Botany

Teaching Plan: Year-2022-23

Class: F.Y.B.Sc.

1000	Paper-I U-II		
14.	Gymnosperms systematic position of Cycas	January-February	SC
15.	Paper-I U-III Angiosperms Modifications of leaf: spine, tendril, hooks, phyllode, pitcher, Drosera or insectivorous plants.	January-February	NDS
16.	Paper-II U-I Anatomy Primary structure of dicot and monocot root, stem and leaf.	January-February	AYS
17.	Paper-II U-II Physiology Photosynthesis: photophosphorylation	January-February	PS
18.	Paper-II U-III Medicinal botany Grandma's pouch: Following plants have to be studies with respect to botanical source, part of the plant used, active constituents present and medicinal uses: Oscimum sanctum, Adathoda vasica	January-February	AKR
19.	Paper-I U-I Pteridophytes alternation of generations in Nephrolepis	February-March	SS
20.	Paper-I U-II Gymnosperms alternation of generations in Cycas	February-March	SC
21.	Paper-I U-III Angiosperms Inflorescence: Racemose: simple raceme, spike, catkin, spadix, panicle. Cymose: monochasial, dichasial, polychasial. Compound: corymb, umbel, cyathium, capitulum, verticellaster, hypanthodium.	February-March	NDS
22.	Paper-II U-I Anatomy Epidermal tissue system: types of hair	February-March	AYS
23.	Paper-II U-II Physiology Photosynthesis: carbon fixation	February-March	PS rtment of Botany

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Department: Botany

Teaching Plan: Year-2022-23

Class: F.Y.B.Sc.

	Phase C3 & C4 cycle		
24.	Paper-II U-III Medicinal botany Grandma's pouch: Following plants have to be studies with respect to botanical source, part of the plant used, active constituents present and medicinal uses: Zinziber officinale, Curcuma longa	February-March	AKR
25.	Paper-I U-I Pteridophytes Stelar evolution	March-April	SS
26.	Paper-I U-II Gymnosperms Economic importance of Gymnosperms	March-April	sc
27.	Paper-I U-III Angiosperms Study of following families: Malvaceae, Amaryllidaceae.	March-April	NDS
28.	Paper-II U-I Anatomy Epidermal tissue system: monocot and dicot stomata.	March-April	AYS
29.	Paper-II U-II Physiology Photosynthesis: CAM pathways	March-April	PS
30.	Paper-II U-III Medicinal botany Grandma's pouch: Following plants have to be studies with respect to botanical source, part of the plant used, active constituents present and medicinal uses: Santalum album, Aloe vera	March-April	AKR

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Class: F.Y.B.Sc.

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Department: Botany Teaching Plan: Year-2023-24

Class: F.Y.B.Sc.

Sr. No.	Topics	Month	Faculty name
1.	Paper-I U-I Algae Structure, Nostoc.	June-July	NDS
2.	Paper-I U-II Fungi Structure	June-July	SS
3.	Paper-I U-III Bryophyta General characters of Hepaticae	June-July	NDS
4.	Paper-II U-I Cell biology General structure of plant cell: cell wall	June-July	AYS
5.	Paper-II U-II Ecology Energy pyramids	June-July	PS
6.	Paper-II U-III Genetics Phenotype/Genotype	June-July	SC
7.	Paper-I U-I Algae life cycle and systematic position of Nostoc	July-August	NDS
8.	Paper-I U-II Fungi life cycle and systematic position of  Rhizopus	July-August	SS
9.	Paper-I U-III Bryophyta Structure of <i>Riccia</i>	July-August	NDS
10.	Paper-II U-I Cell biology General structure of plant cell: Plasma membrane	July-August	PS
11.	Paper-II U-II Ecology energy flow in an ecosystem.	July-August	SS
12.	Paper-II U-III Genetics Mendelian Genetics- monohybrid, dihybrid	July-August	SC
13.	Paper-I U-I Algae Structure of <i>Spirogyra</i>	August-September	NDS
14.	Paper-I U-II Fungi	August September of M Ismail Yusuf C Arts, Science &	allege of

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Teaching Plan: Year-2023-24

Class: F.Y.B.Sc.

	life cycle and systematic position of	T.T.B.SC.	
15.	Aspergillus Paper-I U-III Bryophyta Lifecycle of <i>Riccia</i>	August-September	NDS
16.	Paper-II U-I Cell biology Ultra-structure and functions of the Endoplasmic reticulum	August-September	PS
17.	Paper-II U-II Ecology Aquatic ecosystem	August-September	SS
18.	Paper-II U-III Genetics Test cross, back cross ratios	August-September	SC
19.	Paper-I U-I Algae Economic importance of algae	September-October	NDS
20.	Paper-I U-II Fungi Economic importance of fungi and mode of nutrition in fungi	September-October	SS
21.	Paper-I U-III Bryophyta Systematic position of <i>Riccia</i>	September-October	NDS
22.	Paper-II U-I Cell biology Ultra-structure and functions of the chloroplast	September-October	PS
23.	Paper-II U-II Ecology Terrestrial ecosystem	September-October	SS
24.	Paper-II U-III Genetics Epistatic, non-epistatic interactions, multiple alleles	September-October	SC

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Teaching Plan: Year-2023-24

#### Class: F.Y.B.Sc. Semester-II

Sr. no.	Topics	Months	Faculty name
1	Paper-I U-I	November-December	cc
1.	Pteridophytes General characters	November-December	SS
	Paper-I U-II		
2.	Gymnosperms General characters	November-December	SC
	Paper-I U-III	TENED CERTIFIC	TO STATE OF
3,	Angiosperms General characters	November-December	NDS
	Paper-II U-I	November-December	AYS
4.	Anatomy Simple tissues		
	Paper-II U-II		1
5,	Physiology Photosynthesis: Light reaction	November-December	PS
	Paper-II U-III		AKR
6.	Medicinal botany  Concept of primary and secondary	November-December	
	metabolites		
,	Paper-I U-I	December January	SS
7.	Pteridophytes Lifecycle of Nephrolepis	December-January	33
	Paper-I U-II		
8.	Gymnasperms Lifecycle of Cycas	December-January	SC
	Paper-I U-III		To he had
	Angiosperms		
9.	Leaf: simple leaf, types of compound leaves, Incisions of leaf,	December-January	NDS
	venation, phyllotaxy, types of stipules,		
	leaf apex, leaf margin, leaf		
	base, leaf shapes. Paper-II U-I		
10.	Anatomy	December-January	AYS
	complex tissues		
11.	Paper-II U-II Physiology	December-January	PS
richt (	Photosynthesis: photolysis of water	December samony	
	Paper-II U-III		
12.	Medicinal botany difference	December-January	AKR
	between primary and secondary		
-	metabolites		
13.	Paper-I U-I Pteridophytes	January-February	Iss
131	systematic position of Nephrolepis	Head Departmen	A STATE OF THE PARTY OF THE PAR

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Class: F.Y.B.Sc.

Teaching Plan: Year-2023-24

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14.	Paper-I U-II Gymnosperms systematic position of Cycas	January-February	SC
15.	Paper-I U-III Angiosperms Modifications of leaf: spine, tendril, hooks, phyllode, pitcher, Drosera or insectivorous plants.	January-February	NDS
16.	Paper-II U-I Anatomy Primary structure of dicot and monocot root, stem and leaf.	January-February	AYS
17.	Paper-II U-II Physiology Photosynthesis: photophosphorylation	January-February	PS
18.	Paper-II U-III Medicinal botany Grandma's pouch: Following plants have to be studies with respect to botanical source, part of the plant used, active constituents present and medicinal uses: Oscimum sanctum, Adathoda vasica	January-February	AKR
19.	Paper-I U-I Pteridophytes alternation of generations in Nephrolepis	February-March	SS
20.	Paper-I U-II Gymnosperms alternation of generations in Cycus	February-March	SC
21.	Paper-I U-III Angiosperms Inflorescence: Racemose: simple raceme, spike, catkin, spadix, panicle. Cymose: monochasial, dichasial, polychasial. Compound: corymb, umbel, cyathium, capitulum, verticellaster, hypanthodium.	February-March	NDS
22.	Paper-II U-I Anatomy Epidermal tissue system: types of hair	February-March	AYS
23.	Paper-II U-II Physiology Photosynthesis: carbon fixation	February-March	PS PS

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Teaching Plan: Year-2023-24

Class: F.Y.B.Sc.

	Phase C3 & C4 cycle		
24.	Paper-II U-III Medicinal botany Grandma's pouch: Following plants have to be studies with respect to botanical source, part of the plant used, active constituents present and medicinal uses: Zinziber officinale, Curcuma longa	February-March	AKR
25.	Paper-I U-I Pteridophytes Stelar evolution	March-April	SS
26.	Paper-I U-II Gymnosperms Economic importance of Gymnosperms	March-April	sc
27.	Paper-I U-III Angiosperms Study of following families: Malvaceae, Amaryllidaceae.	March-April	NDS
28.	Paper-II U-I Anatomy Epidermal tissue system: monocot and dicot stomata.	March-April	AYS
29.	Paper-II U-II Physiology Photosynthesis: CAM pathways	March-April	PS
30.	Paper-II U-III Medicinal botany Grandma's pouch: Following plants have to be studies with respect to botanical source, part of the plant used, active constituents present and medicinal uses: Santalum album, Aloe vera	March-April	AKR

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Class: F.Y.B.Sc.

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Department: Botany

Teaching Plan: Year-2018-19

Class: S.Y.B.Sc.

Sr. No.	Topics	Month	Faculty name
1.	Paper-I U-I Thallophyta (Algae) & Bryophyta General Characters of Division Phaeophyta: Distribution, Cell structure, range of thallus, Economic Importance.	June-July	NDS
2.	Paper-II U-I Cell Biology Ultra-Structure and functions of the following cell organelles: o Mitochondrion (membranes, cristae, F1 particles and matrix)	June-July	AYS
3.	Paper-III U-I Pharmacognosy and phytochemistry Introduction to pharmacopoeia	June-July	AKR
4.	Paper-I U-II Angiosperms Systematics: Objectives and Goals of Plant systematic  • Plant Nomenclature	June-July	NDS
5.	Paper-II U-II Cytogenetics Variation in Chromosome structure (Chromosomal Aberrations) Definition, Origin, Cytological and Genetic Effects of the following: Deletions	June-July	SC
6.	Paper-III U-II Forestry and Economic Botany Forestry: Outline of types of forest in India	June-July	SS
7.	Paper-I U-III Modern Techniques to Study Plant Diversity Preservation methods: Dry and Wet method	June-July	PS
8,	Paper-II U-III Molecular Biology DNA replication: Modes of Replication, Messelson and Stahl Experment,	June-July	SC
9.	Paper-III U-III Industry based on plant products Aromatherapy- Introduction, Uses with few examples. Jojoba, lemon	June-July	AKR

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Department: Botany

Teaching Plan: Year-2018-19

Class: S.Y.B.Sc.

10.	Paper-I U-I Thallophyta (Algae) & Bryophyta • Structure, life cycle and systematic position of Sargassum	July-August	NDS
11.	Paper-II U-I Cell Biology Ultra Structure and functions of the following cell organelles: Peroxisomes and Glyoxysomes o Ribosomes (prokaryotic, eukaryotic and subunits)	July-August	AYS
12.	Paper-III U-I Pharmacognosy and phytochemistry Indian pharmacopoeia, Indian Herbal Pharmacopoeia and Ayurvedic Pharmacopoeia	July-August	AKR
13.	Paper-I U-II Angiosperms Taxonomy in relation to Anatomy Palynology Chemical constituents	July-August	NDS
14.	Paper-II U-II Cytogenetics Variation in Chromosome structure (Chromosomal Aberrations) Definition, Origin, Cytological and Genetic Effects of the following: Duplications, Inversions and Translocations.	July-August	SC
15.	Paper-III U-II Forestry and Economic Botany Forestry: Agro-forestry, Urban forestry, organic farming, Silviculture	July-August	SS
16.	Paper-I U-III Modern Techniques to Study Plant Diversity Microscopy – Principle and working of Light, and electron microscope.	July-August	PS PS
17.	Paper-II U-III Molecular Biology DNA replication in prokaryotes and eukaryotes- enzymes involved and molecular mechanism of replication.	July-August	SC
18.	Paper-III U-III Industry based on plant products Aromatherapy- Botanical and nutraceuticals -Spirulina, Vanillin, Garcinia indica/ Garcinia cambogia	July-August	AKR
19.	Paper-I U-I Thallophyta (Algae) & Bryophyta	August-September	NDS nent of Botany

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Department: Botany

Teaching Plan: Year-2018-19

Class: S.Y.B.Sc.

	General Account of Class Anthocerotae and Musci	Marie Marie Marie	
20.	Paper-II U-I Cell Biology Cell Division and its significance o Cell Cycle, structure of Interphase Nucleus (nuclear envelop, chromatin network, nucleolus and nucleoplasm) o Mitosis & Meiosis o Differences between Mitosis and Meiosis	August-September	AYS
21.	Paper-III U-I Pharmacognosy and phytochemistry Secondary Metabolites: Sources, properties, uses and adulterants, regional and seasonal variations	August-September	AKR
22.	Paper-I U-II Angiosperms Taxonomy in relation to Anatomy Embryology Cytology Ecology	August-September	NDS
23.	Paper-II U-II Cytogenetics Sex determination, Sex linked, sex Influenced and sex limited traits: Sex determination- Chromosomal Methods: heterogametic males and heterogametic females. Sex determination in monoecious and dioecious plants. Genic Balance Theory of sex determination in Drosophila, Lyon's Hypothesis of X chromosome inactivation. Sex linked- eye colour in Drosophila, Haemophilia, colour blindness Sex Influenced- baldness in man	August-September	SC
24.	Paper-III U-II Forestry and Economic Botany Economic Botany: • Types of fibers: Jute and cotton, • Current trends in Fiber industries	August-September	SS
25.	Paper-I U-III Modern Techniques to Study Plant Diversity Chromatography- Principles and techniques in paper and thin layer chromatography.	August-September	PS
26.	Paper-II U-III Molecular Biology Protein Synthesis: o Central dogma of	August-September	SC

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Department: Botany

Teaching Plan: Year-2018-19

Class: S.Y.B.Sc.

224	Protein synthesis		
27.	Paper-III U-III Industry based on plant products Enzymes industry: Cellulases, Papain, Bromelain	August-September	AKR
28.	Paper-I U-I Thallophyta (Algae) & Bryophyta Lichens- Classification, Structure, Method of Reproduction, Economic Importance and Ecological Significance of Lichens.	September-October	NDS
29.	Paper-II U-I Cell Biology Differences between Mitosis and Meiosis • Nucleic Acids: Types, structure and functions of DNA and RNA	September-October	AYS
30.	Paper-III U-I Pharmacognosy and phytochemistry Adulterants: Saraca asoca, Polyalthia longifolia Terminalia arjuna, Terminalia tomentosa Bacopa monnieri, Centella asiatica Abrus, Glycyrrhiza Phyllanthus amarus (Bhuiamla)	September-October	AKR
31.	Paper-I U-II Angiosperms With the help of Bentham and Hooker's system of Classification for flowering plants study the vegetative, floral characters and economic importance of the following families: o Leguminosae o Asterace o Amaranthaceae o Palmae	September-October	NDS
32.	Paper-II U-II Cytogenetics Extranuclear Genetics Organelle heredity- o Chloroplast determines heredity - Plastid transmission in plants, Streptomycin resistance in Chlamydomonas. o Male sterility in maize	September-October	SC
33.	Paper-III U-II Forestry and Economic Botany Community ecology- Characters of community - Quantitative characters and qualitative characters	September-October	ss
	Later and Market Control of the Cont	September-October	PS .

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Teaching Plan: Year-2018-19

Class: S.Y.B.Sc.

	Modern Techniques to Study Plant Diversity Principles and techniques of Horizontal and Vertical electrophoresis		
35.	Paper-II U-III Molecular Biology Transcription in prokaryotes and eukaryotes: promoter sites, initiation, elongation and termination. o RNA processing: Adenylation & Capping.	September-October	SC
36.	Paper-III U-III Industry based on plant products • Biofuels.	September-October	AKR

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Teaching Plan: Year-2018-19

Class: S.Y.B.Sc.

#### Semester-IV

Sr. No.	Topics	Month	Faculty name
1.	Paper-I U-I Thallophyta: Fungi, Plant Pathology and Lichens Fungi • General characters of Ascomycetae	November-December	NDS
2.	Paper-II U-I Anatomy  Normal Secondary Growth in Dicotyledonous stem and root.	November-December	AYS
3.	Paper-III U-I Horticulture and Gardening Introduction to Horticulture: Branches of Horticulture	November-December	AKR
4.	Paper-I U-II Thallophyta: Fungi, Plant Pathology and Lichens Fungi Salient features and classification upto orders (with examples of each) of Psilophyta and Lepidophyta (G M Smith's system of classification to be followed)	November-December	NDS
5.	Paper-II U-II Plant Physiology and Plant Biochemistry • Respiration: Aerobic: Glycolysis, TCA Cycle, ETS & Energetic of respiration; Anaerobic respiration.	November-December	PS
6.	Paper-III U-II Biotechnology Introduction to plant tissue culture o Laboratory organization and techniques in plant tissue culture	November-December	SC
7.	Paper-I U-III Gymnosperms • Salient features, classification up to orders (with examples of each) and economic importance of Coniferophyta (Chamberlain's system of classification to be followed)	November-December	NDS
8.	Paper-II U-III Ecology and Environmental Botany Biogeochemical Cycles- Carbon, Nitrogen and Water.	November-December	SS
9.	Paper-III U-III Biostatistics: The chi square test.	November-December	of sc

Head Department of Botany Government of Maharashtra's Ismail Yusuf College of Arts, Science & Commerce, Jogeshwari (East), Mumbai - 400 060.

Department: Botany

Teaching Plan: Year-2018-19

Class: S.Y.B.Sc.

10.	Paper-I U-I Structure, life cycle and systematic position of Erysiphe and Xylaria	December-January	NDS
11.	Paper-II U-I Growth rings, periderm, lenticels, tyloses, heart wood and sap wood.	December-January	AYS
12.	Paper-III U-I Types of garden o Formal and informal gardens	December-January	AKR
13.	Paper-I U-II Pteridophyta and Paleobotany Pteridophyta- Structure, life cycle and systematic position of Selaginella	December-January	NDS
14.	Paper-II U-II Plant Physiology and Plant Biochemistry Photorespiration	December-January	PS
15.	Paper-III U-II Introduction to plant tissue culture o Totipotency o Organogenesis	December-January	SC
16.	Paper-I U-III Structure life cycle and systematic position of Pinus	December-January	NDS:
17.	Paper-II U-III Ecological factors: Concept of environmental factors.	December-January	SS
18.	Paper-III U-III Biostatistics: Correlation – Calculation of coefficient of correlation.	December-January	SC
19.	Paper-I U-I Thallophyta: Plant Pathology- Symptoms, causative organism, disease cycle and control measures of o Powdery mildew	January-February	NDS
20.	Paper-II U-I     Mechanical Tissue system o Tissues providing mechanical strength and support and their disposition	January-February	AYS
21.	Paper-III U-I  Types of garden o National Park: Sanjay Gandhi National Park	January-February	AKR
22.	Paper-I U-II  Paleobotany- The geological time scale	January-February  Aut	NDS

Department: Botany

Teaching Plan: Year-2018-19

Class: S.Y.B.Sc.

23.	Paper-II U-II Plant Physiology and Plant Biochemistry Photoperiodism: Phytochrome Response and Vernalization with reference to flowering in higher	January-February	PS
24.	plants  Paper-III U-II Introduction to plant tissue culture o Organ culture – root cultures, meristem cultures, anther and pollen culture, embryo culture.	January-February	SC
25.	Paper-I U-III Structure and systematic position of the form genus Cordaites	January-February	NDS
26.	Paper-II U-III Soil as an edaphic factor, Soil composition, types of soil, soil formation, soil profile.	January-February	SS
27.	Paper-III U-III Biostatistics and Bioinformatics  • Bioinformatics o Information technology: History and tools of IT, Internet and its uses.	January-February	sc
28.	Paper-I U-I Thallophyta: Plant Pathology- Symptoms, causative organism, disease cycle and control measures of o Late blight of potato	February-March	NDS
29.	Paper-II U-I  Mechanical Tissue system  o I-girders in aerial and underground  organs	February-March	AYS
30.	Paper-III U-I o Botanical Garden: Veer Mata JijabaiUdyan (Victoria Garden)	February-March	AKR
31.	Paper-I U-II Formation and types of fossils	February-March	NDS
32.	Paper-II U-II Physico-chemical properties of phytochrome	February-March	PS
33.	Paper-III U-II  R-DNA technology- o Gene cloning	February-March	SC
34.	Paper-I U-III • Structure of Cordaites	February-March	NDS
35.	Paper-II U-III Community ecology- Characters of	February-March	SS

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Department: Botany Teaching Plan: Year-2018-19

Class: S.Y.B.Sc.

	community - Quantitative characters and qualitative characters		A MAIN
36.	Paper-III U-III Biostatistics and Bioinformatics o Introduction to Bioinformatics- goal, need, scope and limitation o Aims of Bioinformatics: Data organization, Tools of Bioinformatics- tools for web search, Data retrieval tools- Entrez	February-March	SC
37.	Paper-I U-I Lichens- Classification, Structure, Method of Reproduction, Economic Importance and Ecological Significance of Lichens.	March-April	NDS
38.	Paper-II U-I Types of Vascular Bundles.	March-April	AYS
39.	Paper-III U-I Types of garden o National Park: Sanjay Gandhi National Park, o Botanical Garden: Veer Mata JijabaiUdyan (Victoria Garden)	March-April	AKR
40.	Paper-I U-II Structure and systematic position of form genus Rhynia	March-April	NDS
41.	Paper-II U-II  Vernalization mechanisms and applications.	March-April	PS
42.	Paper-III U-II R-DNA technology- o Enzymes involved in Gene cloning o Vectors used for Gene cloning.	March-April	SC
43.	Paper-I U-III systematic position of the form genus Cordaites	March-April	NDS
44.	Paper-II U-III Community ecology- Characters of community - qualitative characters	March-April	SS
45.	Paper-III U-III o BLAST o Bioinformatics programme in India.	March-April	SC

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Jogeshwari (East), Mumbai - 400 080.

Department: Botany

Teaching Plan: Year-2019-20

Class: S.Y.B.Sc.

Sr. No.	Topics	Month	Faculty name
1.	Paper-I U-I Thallophyta (Algae) & Bryophyta General Characters of Division Phaeophyta: Distribution, Cell structure, range of thallus, Economic Importance.	June-July	NDS
2.	Paper-II U-I Cell Biology Ultra-Structure and functions of the following cell organelles: o Mitochondrion (membranes, cristae, F1 particles and matrix)	June-July	AYS
3.	Paper-III U-I Pharmacognosy and phytochemistry Introduction to pharmacopoeia	June-July	AKR
4.	Paper-I U-II Angiosperms Systematics: Objectives and Goals of Plant systematic • Plant Nomenclature	June-July	NDS
5.	Paper-II U-II Cytogenetics Variation in Chromosome structure (Chromosomal Aberrations) Definition, Origin, Cytological and Genetic Effects of the following: Deletions	June-July	PS
6.	Paper-III U-II Forestry and Economic Botany Forestry: Outline of types of forest in India	June-July	SS
7.	Paper-I U-III Modern Techniques to Study Plant Diversity Preservation methods: Dry and Wet method	June-July	PS
8.	Paper-II U-III Molecular Biology DNA replication: Modes of Replication, Messelson and Stahl Experment,	June-July	PS
9.	Paper-III U-III Industry based on plant products Aromatherapy- Introduction, Uses with few examples. Jojoba, lemon	June-July	AKR  AKR  AKR  AND  AND  AND  AND  AND  AND  AND  AN

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Department: Botany

Teaching Plan: Year-2019-20

Class; S.Y.B.Sc.

10.	Paper-I U-I Thallophyta (Algae) & Bryophyta  • Structure, life cycle and systematic	July-August	NDS
11.	position of Sargassum Paper-II U-I	July-August	AYS
	Cell Biology Ultra Structure and functions of the following cell organelles: Peroxisomes and Glyoxysomes o Ribosomes (prokaryotic, eukaryotic and subunits)		
12.	Paper-III U-I Pharmacognosy and phytochemistry Indian pharmacopoeia, Indian Herbal Pharmacopoeia and Ayurvedic Pharmacopoeia	July-August	AKR
13.	Paper-I U-II Angiosperms Taxonomy in relation to Anatomy Palynology Chemical constituents	July-August	NDS
14.	Paper-II U-II Cytogenetics Variation in Chromosome structure (Chromosomal Aberrations) Definition, Origin, Cytological and Genetic Effects of the following: Duplications, Inversions and Translocations.	July-August	PS
15.	Paper-III U-II Forestry and Economic Botany Forestry: Agro-forestry, Urban forestry, organic farming, Silviculture	July-August	SS
16.	Paper-I U-III  Modern Techniques to Study Plant Diversity Microscopy – Principle and working of Light, and electron microscope.	July-August	PS
17.	Paper-II U-III Molecular Biology DNA replication in prokaryotes and eukaryotes- enzymes involved and molecular mechanism of replication.	July-August	PS
18.	Paper-III U-III Industry based on plant products Aromatherapy- Botanical and nutraceuticals -Spirulina, Vanillin, Garcinia indica/ Garcinia cambogia	July-August	AKR
19.	Paper-I U-I Thallophyta (Algae) & Bryophyta	August-September	NDS

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Department: Botany

Teaching Plan: Year-2019-20

Class: S.Y.B.Sc.

	General Account of Class	SE CONTRACTOR AND ADDRESS OF THE PARTY OF TH	
	Anthocerotae and Musci	A STATE OF THE PARTY OF THE PAR	
20.	Paper-II U-I Cell Biology Cell Division and its significance o Cell Cycle, structure of Interphase Nucleus (nuclear envelop, chromatin network, nucleolus and nucleoplasm) o Mitosis & Meiosis o Differences between Mitosis and Meiosis	August-September	AYS
21	Paper-III U-I Pharmacognosy and phytochemistry Secondary Metabolites: Sources, properties, uses and adulterants, regional and seasonal variations	August-September	AKR
22.	Paper-I U-II Angiosperms Taxonomy in relation to Anatomy Embryology Cytology Ecology	August-September	NDS
23.	Paper-II U-II Cytogenetics Sex determination, Sex linked, sex influenced and sex limited traits: Sex determination- Chromosomal Methods: heterogametic males and heterogametic females. Sex determination in monoecious and dioecious plants. Genic Balance Theory of sex determination in Drosophila, Lyon's Hypothesis of X chromosome inactivation. Sex linked-eye colour in Drosophila, Haemophilia, colour blindness Sex influenced-baldness in man	August-September	PS
24.	Paper-III U-II Forestry and Economic Botany Economic Botany: • Types of fibers: Jute and cotton, • Current trends in Fiber industries	August-September	SS
25.	Paper-I U-III Modern Techniques to Study Plant Diversity Chromatography- Principles and techniques in paper and thin layer chromatography.	August-September	PS
26.	Paper-II U-III Molecular Biology Protein Synthesis: o Central dogma of	August-September	PS ment of Botany

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Department: Botany

Teaching Plan: Year-2019-20

Class: S.Y.B.Sc.

	Protein synthesis		
27.	Paper-III U-III Industry based on plant products Enzymes industry: Cellulases, Papain, Bromelain	August-September	AKR
28.	Paper-I U-I Thallophyta (Algae) & Bryophyta Lichens- Classification, Structure, Method of Reproduction, Economic Importance and Ecological Significance of Lichens.	September-October	NDS
29.	Paper-II U-I Cell Biology Differences between Mitosis and Meiosis • Nucleic Acids: Types, structure and functions of DNA and RNA	September-October	AYS
30.	Paper-III U-I Pharmacognosy and phytochemistry Adulterants: Saraca asoca, Polyalthia longifolia Terminalia arjuna, Terminalia tomentosa Bacopa monnieri, Centella asiatica Abrus, Glycyrrhiza Phyllanthus amarus (Bhuiamla)	September-October	AKR
31.	Paper-I U-II Angiosperms With the help of Bentham and Hooker's system of Classification for flowering plants study the vegetative, floral characters and economic importance of the following families: o Leguminosae o Asterace o Amaranthaceae o Palmae	September-October	NDS
32.	Paper-II U-II Cytogenetics Extranuclear Genetics Organelle heredity- o Chloroplast determines heredity- Plastid transmission in plants, Streptomycin resistance in Chlamydomonas. o Male sterility in maize	September-October	PS
33.	- 0.00 Dates	September-October	SS
_	Paper-I U-III	September-October	PS

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Department: Botany

Teaching Plan: Year-2019-20

Class: S.Y.B.Sc.

	Modern Techniques to Study Plant Diversity Principles and techniques of Horizontal and Vertical electrophoresis		
35.	Paper-II U-III Molecular Biology Transcription in prokaryotes and eukaryotes: promoter sites, initiation, elongation and termination. o RNA processing: Adenylation & Capping.	September-October	PS
36.	Paper-III U-III Industry based on plant products  • Biofuels.	September-October	AKR

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Department: Botany

Teaching Plan: Year-2019-20

Class: S.Y.B.Sc.

#### Semester-IV

Sr. No.	Topics	Month	Faculty name
1.	Paper-I U-I Thallophyta: Fungi, Plant Pathology and Lichens Fungi • General characters of Ascomycetae	November-December	NOS
2.	Paper-II U-I Anatomy  • Normal Secondary Growth in Dicotyledonous stem and root.	November-December	AYS
3.	Paper-III U-I Horticulture and Gardening Introduction to Horticulture: Branches of Horticulture	November-December	AKR
4.	Paper-I U-II Thallophyta: Fungi, Plant Pathology and Lichens Fungi Salient features and classification upto orders (with examples of each) of Psilophyta and Lepidophyta (G M Smith's system of classification to be followed)	November-December	NDS
5.	Paper-II U-II Plant Physiology and Plant Biochemistry • Respiration: Aerobic: Glycolysis, TCA Cycle, ETS & Energetic of respiration; Anaerobic respiration.	November-December	PS
6.	Paper-III U-II Biotechnology • Introduction to plant tissue culture o Laboratory organization and techniques in plant tissue culture	November-December	PS
7.	Paper-I U-III Gymnosperms • Salient features, classification up to orders (with examples of each) and economic importance of Coniferophyta (Chamberlain's system of classification to be followed)	November-December	NDS
8.	Paper-II U-III Ecology and Environmental Botany Biogeochemical Cycles- Carbon, Nitrogen and Water.	November-December	SS
9.	Paper-III U-III Biostatistics: The chi square test.	November-December	PS
10.	Paper-I U-I	December-January	NDS

Department: Botany

Class: S.Y.B.Sc.

Teaching Plan: Year-2019-20

	Structure, life cycle and systematic		
	position of Erysiphe and Xylaria		
11.	Paper-II U-I Growth rings, periderm, lenticels, tyloses, heart wood and sap wood.	December-January	AYS
12.	Paper-III U-I Types of garden o Formal and informal gardens	December-January	AKR
13.	Paper-I U-II Pteridophyta and Paleobotany Pteridophyta- Structure, life cycle and systematic position of Selaginella	December-January	NDS
14.	Paper-II U-II Plant Physiology and Plant Biochemistry Photorespiration	December-January	PS
15.	Paper-III U-II Introduction to plant tissue culture o Totipotency o Organogenesis	December-January	PS
16.	Paper-I U-III Structure life cycle and systematic position of Pinus	December-January	NDS
17.	Paper-II U-III Ecological factors: Concept of environmental factors.	December-January	SS
18.	Paper-III U-III Biostatistics: Correlation – Calculation of coefficient of correlation.	December-January	PS
19.	Paper-I U-I Thallophyta: Plant Pathology- Symptoms, causative organism, disease cycle and control measures of o Powdery mildew	January-February	NDS
20.	Paper-II U-I  Mechanical Tissue system o Tissues providing mechanical strength and support and their disposition	January-February	AYS
21.	Paper-III U-I  Types of garden o National Park: Sanjay Gandhi National Park.	January-February	AKR
22.	Paper-I U-II  Paleobotany- The geological time scale	January-February	NDS
23.	Paper-II U-II Plant Physiology and Plant	January-February	PS

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Department: Botany Teaching Plan: Year-2019-20

Class: S.Y.B.Sc.

	Biochemistry Photoperiodism: Phytochrome Response and Vernalization with reference to flowering in higher plants		
24.	Paper-III U-II Introduction to plant tissue culture o Organ culture – root cultures, meristem cultures, anther and pollen culture, embryo culture.	January-February	PS
25.	Paper-I U-III Structure and systematic position of the form genus Cordaites	January-February	NDS
26.	Paper-II U-III Soil as an edaphic factor, Soil composition, types of soil, soil formation, soil profile.	January-February	SS
27.	Paper-III U-III Biostatistics and Bioinformatics • Bioinformatics o Information technology: History and tools of IT, Internet and its uses.	January-February	PS
28.	Paper-I U-I Thallophyta: Plant Pathology- Symptoms, causative organism, disease cycle and control measures of o Late blight of potato	February-March	NDS
29.	Paper-II U-I  Mechanical Tissue system  o I-girders in aerial and underground  organs	February-March	AYS
30.	Paper-III U-I o Botanical Garden: Veer Mata JijabaiUdyan (Victoria Garden)	February-March	AKR
31.	Paper-I U-II Formation and types of fossils	February-March	NDS
32.	Paper-II U-II Physico-chemical properties of phytochrome	February-March	PS
33.	Paper-III U-II  R-DNA technology- o Gene cloning	February-March	PS
34.	Paper-I U-III  Structure and systematic position of the form genus Cordaites	February-March	NDS
35.	Paper-II U-III Community ecology- Characters of community - Quantitative characters and qualitative characters	February-March	SS
36.	Paper-III U-III	February-March	Balla PS

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Department: Botany

Teaching Plan: Year-2019-20

Class: S.Y.B.Sc.

	Biostatistics and Bioinformatics o Introduction to Bioinformatics- goal, need, scope and limitation o Aims of Bioinformatics: Data organization, Tools of Bioinformatics- tools for web search, Data retrieval tools- Entrez, o BLAST o Bioinformatics programme in India.		
37.	Paper-I U-I Lichens- Classification, Structure, Method of Reproduction, Economic Importance and Ecological Significance of Lichens.	March-April	NDS
38.	Paper-II U-I Types of Vascular Bundles.	March-April	AYS
39.	Paper-III U-I Types of garden o National Park: Sanjay Gandhi National Park. o Botanical Garden: Veer Mata JijabaiUdyan (Victoria Garden)	March-April	AKR
40.	Paper-I U-II Structure and systematic position of form genus Rhynia	March-April	NDS
41.	Paper-II U-II Vernalization mechanisms and applications.	March-April	PS
42.	Paper-III U-II R-DNA technology- o Enzymes involved in Gene cloning o Vectors used for Gene cloning.	March-April	SC
43.	Paper-I U-III systematic position of the form genus Cordaites	March-April	NDS
44.	Paper-II U-III Community ecology- Characters of community - qualitative characters	March-April	SS
45.	Paper-III U-III o BLAST o Bioinformatics programme in India.	March-April	SC

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Department: Botany

Teaching Plan: Year-2020-21

Class: S.Y.B.PS.

No.	Topics	Month	Faculty name
1.	Paper-I U-I Thallophyta (Algae) & Bryophyta General Characters of Division Phaeophyta: Distribution, Cell structure, range of thallus, Economic Importance.	June-July	NDS
2.	Paper-II U-I Cell Biology Ultra-Structure and functions of the following cell organelles: o Mitochondrion (membranes, cristae, F1 particles and matrix)	June-July	AYS
3.	Paper-III U-I Pharmacognosy and phytochemistry Introduction to pharmacopoeia	June-July	AKR
4.	Paper-I U-II Angiosperms Systematics: Objectives and Goals of Plant systematic • Plant Nomenclature	June-July	NDS
5.	Paper-II U-II Cytogenetics Variation in Chromosome structure (Chromosomal Aberrations) Definition, Origin, Cytological and Genetic Effects of the following: Deletions	June-July	PS
6.	Paper-III U-II Forestry and Economic Botany Forestry: Outline of types of forest in India	June-July	SS
7.	Paper-I U-III Modern Techniques to Study Plant Diversity Preservation methods: Dry and Wet method	June-July	PS
8.	Paper-II U-III Molecular Biology DNA replication: Modes of Replication, Messelson and Stahl Experment,	June-July	PS
9.	Paper-III U-III Industry based on plant products Aromatherapy-Introduction, Uses with few examples. Jojoba, lemon	June-July Head Depart	ment of Botany

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Jogeshandt (Rest); Mumber: 400 969.

Department: Botany

Teaching Plan: Year-2020-21

Class: S.Y.B.PS.

10.	Paper-I U-I	July-August	NDS
-20	Thallophyta (Algae) & Bryophyta  • Structure, life cycle and systematic position of Sargassum		
11.	Paper-II U-I Cell Biology Ultra Structure and functions of the following cell organelles: Peroxisomes and Glyoxysomes o Ribosomes (prokaryotic, eukaryotic and subunits)	July-August	AYS
12.	Paper-III U-I Pharmacognosy and phytochemistry Indian pharmacopoela, Indian Herbal Pharmacopoela and Ayurvedic Pharmacopoela	July-August	AKR
13.	Paper-I U-II Angiosperms Taxonomy in relation to Anatomy Palynology Chemical constituents	July-August	NDS
14.	Paper-II U-II Cytogenetics Variation in Chromosome structure (Chromosomal Aberrations) Definition, Origin, Cytological and Genetic Effects of the following: Duplications, Inversions and Translocations.	July-August	PS
15.	Paper-III U-II Forestry and Economic Botany Forestry: Agro-forestry, Urban forestry, organic farming, Silviculture	July-August	SS
16.	Paper-I U-III Modern Techniques to Study Plant Diversity MicroPSopy – Principle and working of Light, and electron microPSope.	July-August	PS
17.	Paper-II U-III Molecular Biology DNA replication in prokaryotes and eukaryotes- enzymes involved and molecular mechanism of replication.	July-August	PS
18.	Paper-III U-III Industry based on plant products Aromatherapy- Botanical and nutraceuticals -Spirulina, Vanillin, Garcinia indica/ Garcinia cambogia	July-August	AKR
19.	Paper-I U-I Thallophyta (Algae) & Bryophyta	August-September	NDS of Gotany

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Department: Botany

Teaching Plan: Year-2020-21

Class: S.Y.B.PS.

SIL	General Account of Class		
20.	Anthocerotae and MuPSi Paper-II U-I	August-September	AYS
20.	Cell Biology Cell Division and its significance o Cell Cycle, structure of Interphase Nucleus (nuclear envelop, chromatin network, nucleolus and nucleoplasm) o Mitosis & Meiosis o Differences between Mitosis and Meiosis		
21.	Paper-III U-I Pharmacognosy and phytochemistry Secondary Metabolites: Sources, properties, uses and adulterants, regional and seasonal variations	August-September	AKR
22.	Paper-I U-II Angiosperms Taxonomy in relation to Anatomy Embryology Cytology Ecology	August-September	NDS
23.	Paper-II U-II Cytogenetics Sex determination, Sex linked, sex influenced and sex limited traits: Sex determination- Chromosomal Methods: heterogametic males and heterogametic females. Sex determination in monoecious and dioecious plants. Genic Balance Theory of sex determination in Drosophila, Lyon's Hypothesis of X chromosome inactivation. Sex linked-eye colour in Drosophila, Haemophilia, colour blindness Sex influenced-baldness in man	August-September	PS
24.	Paper-III U-II Forestry and Economic Botany Economic Botany: • Types of fibers: Jute and cotton, • Current trends in Fiber industries	August-September	SS
25.	Paper-I U-III Modern Techniques to Study Plant Diversity Chromatography- Principles and techniques in paper and thin layer chromatography.	August-September	PS
26.		August-September	PS Activity

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Teaching Plan: Year-2020-21

Class: S.Y.B.PS.

	Protein synthesis		ALEXA DE
27.	Industry based on plant products Enzymes industry: Cellulases, Papain, Bromelain	August-September	AKR
28.	Paper-I U-I Thallophyta (Algae) & Bryophyta Lichens- Classification, Structure, Method of Reproduction, Economic Importance and Ecological Significance of Lichens.	September-October	NDS
29.	Paper-II U-I Cell Biology Differences between Mitosis and Meiosis • Nucleic Acids: Types, structure and functions of DNA and RNA	September-October	AYS
30.	Paper-III U-I Pharmacognosy and phytochemistry Adulterants: Saraca asoca, Polyalthia longifolia Terminalia arjuna, Terminalia tomentosa Bacopa monnieri, Centella asiatica Abrus, Glycyrrhiza Phyllanthus amarus (Bhuiamla)	September-October	AKR
31.	Paper-I U-II Angiosperms With the help of Bentham and Hooker's system of Classification for flowering plants study the vegetative, floral characters and economic importance of the following families: o Leguminosae o Asterace o Amaranthaceae o Palmae	September-October	NDS
32.	Paper-II U-II Cytogenetics Extranuclear Genetics Organelle heredity- o Chloroplast determines heredity- Plastid transmission in plants, Streptomycin resistance in Chlamydomonas. o Male sterility in maize	September-October	PS
33.	Paper-III U-II Forestry and Economic Botany Community ecology- Characters of community - Quantitative characters and qualitative characters	September-October	SS
34.	Paper-I U-III	September-October	PS

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Teaching Plan: Year-2020-21

Class: S.Y.B.PS.

	Modern Techniques to Study Plant Diversity Principles and techniques of Horizontal and Vertical electrophoresis		
35.	Paper-II U-III Molecular Biology TranPSription in prokaryotes and eukaryotes: promoter sites, initiation, elongation and termination. o RNA processing: Adenylation & Capping.	September-October	PS
36.	Paper-III U-III Industry based on plant products  • Biofuels.	September-October	AKR

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Department: Botany

Teaching Plan: Year-2020-21

Class: S.Y.B.PS.

#### Semester-IV

r. No.	Topics	Month	Faculty name
1.	Paper-I U-I Thallophyta: Fungi, Plant Pathology and Lichens Fungi • General characters of APSomycetae	November-December	NDS
2.	Paper-II U-I Anatomy  Normal Secondary Growth in Dicotyledonous stem and root.	November-December	AYS
3.	Paper-III U-I Horticulture and Gardening Introduction to Horticulture: Branches of Horticulture	November-December	AKR
4.	Paper-I U-II Thallophyta: Fungi, Plant Pathology and Lichens Fungi Salient features and classification upto orders (with examples of each) of Psilophyta and Lepidophyta (G M Smith's system of classification to be followed)	November-December	NDS
5.	Paper-II U-II Plant Physiology and Plant Biochemistry • Respiration: Aerobic: Glycolysis, TCA Cycle, ETS & Energetic of respiration; Anaerobic respiration.	November-December	PS
6.	Paper-III U-II Biotechnology • Introduction to plant tissue culture o Laboratory organization and techniques in plant tissue culture	November-December	PS
7.	Paper-I U-III Gymnosperms • Salient features, classification up to orders (with examples of each) and economic importance of Coniferophyta (Chamberlain's system of classification to be followed)	November-December	NDS
8.	Paper-II U-III Ecology and Environmental Botany Biogeochemical Cycles- Carbon, Nitrogen and Water.	November-December	SS
9.	Paper-III U-III Biostatistics: The chi square test.	November-December	PS
10.	Paper-I U-I	December January	NDS

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Class: S.Y.B.PS.

	Structure, life cycle and systematic	WELL STREET	
	position of Erysiphe and Xylaria		****
11.	Paper-II U-I Growth rings, periderm, lenticels, tyloses, heart wood and sap wood.	December-January	AYS
12.	Paper-III U-I Types of garden o Formal and informal gardens	December-January	AKR
13.	Paper-I U-II Pteridophyta and Paleobotany Pteridophyta- Structure, life cycle and systematic position of Selaginella	December-January	NDS
14.	Paper-II U-II Plant Physiology and Plant Biochemistry Photorespiration	December-January	PS
15.	Paper-III U-II Introduction to plant tissue culture o Totipotency o Organogenesis	December-January	PS
16.	Paper-I U-III Structure life cycle and systematic position of Pinus	December-January	NDS
17.	Paper-II U-III Ecological factors: Concept of environmental factors.	December-January	SS
18.	Paper-III U-III Biostatistics: Correlation – Calculation of coefficient of correlation.	December-January	PS
19.	Paper-I U-I Thallophyta: Plant Pathology- Symptoms, causative organism, disease cycle and control measures of o Powdery mildew	January-February	NDS
20.	Paper-II U-I     Mechanical Tissue system o Tissues providing mechanical strength and support and their disposition	January-February	AYS
21.	Paper-III U-I  Types of garden o National Park: Sanjay Gandhi National Park.	January-February	AKR
22.	Paper-I U-II  Paleobotany- The geological time PSale	January-February	NDS
23.	Paper-II U-II Plant Physiology and Plant	January/February	PS

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Department: Botany

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Class: S.Y.B.PS.

	Biochemistry Photoperiodism: Phytochrome Response and Vernalization with reference to flowering in higher plants		
24.	Introduction to plant tissue culture o Organ culture – root cultures, meristem cultures, anther and pollen culture, embryo culture.	January-February	PS
25.	Paper-I U-III Structure and systematic position of the form genus Cordaites	January-February	NDS
26.	Paper-II U-III Soil as an edaphic factor, Soil composition, types of soil, soil formation, soil profile.	January-February	SS
27.	Paper-III U-III Biostatistics and Bioinformatics • Bioinformatics o Information technology: History and tools of IT, Internet and its uses.	January-February	PS
28.	Paper-I U-I Thallophyta: Plant Pathology- Symptoms, causative organism, disease cycle and control measures of o Late blight of potato	February-March	NDS
29.	Paper-II U-I     Mechanical Tissue system     o I-girders in aerial and underground     organs	February-March	AYS
30.	Paper-III U-I o Botanical Garden: Veer Mata JijabaiUdyan (Victoria Garden)	February-March	AKR
31.	Paper-I U-II Formation and types of fossils	February-March	NDS
32.	Paper-II U-II Physico-chemical properties of phytochrome	February-March	PS
33.	Paper-III U-II  R-DNA technology- o Gene cloning	February-March	PS
34.	Paper-I U-III  • Structure and systematic position of the form genus Cordaites	February-March	NDS
35.	Paper-II U-III Community ecology- Characters of community - Quantitative characters and qualitative characters	February-March	SS
36.	Paper-III U-III	February-Matshany	PS

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Department: Botany Teaching Plan: Year-2020-21

Class: S.Y.B.PS.

	Biostatistics and Bioinformatics o Introduction to Bioinformatics- goal, need, PSope and limitation o Aims of Bioinformatics: Data organization, Tools of Bioinformatics- tools for web search, Data retrieval tools- Entrez, o BLAST o Bioinformatics programme in India.		
1.	Paper-I U-I Thallophyta: Fungi, Plant Pathology and Lichens Fungi • General characters of Ascomycetae	November-December	NDS
2.	Paper-II U-I Anatomy • Normal Secondary Growth in Dicotyledonous stem and root.	November-December	AYS
3.	Paper-III U-I Horticulture and Gardening Introduction to Horticulture: Branches of Horticulture	November-December	AKR
4.	Paper-I U-II Thallophyta: Fungi, Plant Pathology and Lichens Fungi Salient features and classification upto orders (with examples of each) of Psilophyta and Lepidophyta (G M Smith's system of classification to be followed)	November-December	NDS
5.	Paper-II U-II Plant Physiology and Plant Biochemistry • Respiration: Aerobic: Glycolysis, TCA Cycle, ETS & Energetic of respiration; Anaerobic respiration.	November-December	PS
6.	Paper-III U-II Biotechnology • Introduction to plant tissue culture o Laboratory organization and techniques in plant tissue culture	November-December	SC
7.	Paper-I U-III Gymnosperms • Salient features, classification up to orders (with examples of each) and economic importance of Coniferophyta (Chamberlain's system of classification to be followed)	November-December	NDS
8.	Paper-II U-III ACM	November-December	SS

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Class: S.Y.B.PS.

	Ecology and Environmental Botany Biogeochemical Cycles- Carbon, Nitrogen and Water.		
9.	Paper-III U-III Biostatistics: The chi square test.	November-December	SC
10.	Paper-I U-I Structure, life cycle and systematic position of Erysiphe and Xylaria	December-January	NDS
11.	Paper-II U-I Growth rings, periderm, lenticels, tyloses, heart wood and sap wood.	December-January	AYS
12.	Paper-III U-I Types of garden o Formal and informal gardens	December-January	AKR
13.	Paper-I U-II Pteridophyta and Paleobotany Pteridophyta- Structure, life cycle and systematic position of Selaginella	December-January	NDS
14.	Paper-II U-II Plant Physiology and Plant Biochemistry Photorespiration	December-January	PS
15.	Paper-III U-II Introduction to plant tissue culture o Totipotency o Organogenesis	December-January	SC
16.	Paper-I U-III Structure life cycle and systematic position of Pinus	December-January	NDS
17.	Paper-II U-III Ecological factors: Concept of environmental factors.	December-January	SS
18.	Paper-III U-III Biostatistics: Correlation – Calculation of coefficient of correlation.	December-January	SC
19.	Paper-I U-I Thallophyta: Plant Pathology- Symptoms, causative organism, disease cycle and control measures of o Powdery mildew	January-February	NDS
20.	Paper-II U-I  • Mechanical Tissue system o Tissues providing mechanical strength and support and their disposition	January-February	AYS
21.	Paper-III U-I  Types of garden o National Park: Sanjay Gandhi	January-February	AKR Joreny

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Jegospiwali (East), Mumbal - 400 980,

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Teaching Plan: Year-2020-21

Class: S.Y.B.PS.

	National Park.		- 100
22.	Paper-I U-II     Paleobotany- The geological time scale	January-February	NDS
23.	Paper-II U-II Plant Physiology and Plant Biochemistry Photoperiodism: Phytochrome Response and Vernalization with reference to flowering in higher plants	January-February	PS
24.	Paper-III U-II Introduction to plant tissue culture o Organ culture – root cultures, meristem cultures, anther and pollen culture, embryo culture.	January-February	SC
25.	Paper-I U-III Structure and systematic position of the form genus Cordaites	January-February	NDS
26.	Paper-II U-III Soil as an edaphic factor, Soil composition, types of soil, soil formation, soil profile.	January-February	SS
27.	Paper-III U-III Biostatistics and Bioinformatics • Bioinformatics o Information technology: History and tools of IT, Internet and its uses.	January-February	SC
28.	Paper-I U-I Thallophyta: Plant Pathology- Symptoms, causative organism, disease cycle and control measures of o Late blight of potato	February-March	NDS
29.	Paper-II U-I     Mechanical Tissue system     o I-girders in aerial and underground     organs	February-March	AYS
30.	Paper-III U-I o Botanical Garden: Veer Mata JijabaiUdyan (Victoria Garden)	February-March	AKR
31.	Paper-I U-II Formation and types of fossils	February-March	NDS
32.	Paper-II U-II Physico-chemical properties of phytochrome	February-March	PS
33.	The Water Control of the Control of	February-March	sc
34.	Paper-I U-III	February-March	NDS

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Class: S.Y.B.PS.

	Structure of Cordaites		
35.	Paper-II U-III Community ecology- Characters of community - Quantitative characters and qualitative characters	February-March	SS
36.	Paper-III U-III Biostatistics and Bioinformatics o Introduction to Bioinformatics- goal, need, scope and limitation o Aims of Bioinformatics: Data organization, Tools of Bioinformatics- tools for web search, Data retrieval tools- Entrez	February-March	SC
37.	Paper-I U-I Lichens- Classification, Structure, Method of Reproduction, Economic Importance and Ecological Significance of Lichens.	March-April	NDS
38.	Paper-II U-I Types of Vascular Bundles.	March-April	AYS
39.	Paper-III U-I Types of garden o National Park: Sanjay Gandhi National Park. o Botanical Garden: Veer Mata JijabaiUdyan (Victoria Garden)	March-April	AKR
40.	Paper-I U-II Structure and systematic position of form genus Rhynia	March-April	NDS
41.	Paper-II U-II Vernalization mechanisms and applications.	March-April	PS
42.	Paper-III U-II R-DNA technology- o Enzymes involved in Gene cloning o Vectors used for Gene cloning.	March-April	SC
43.	Paper-I U-III systematic position of the form genus Cordaites	March-April	NDS
44.	Paper-II U-III Community ecology- Characters of community - qualitative characters	March-April	SS
45.	Paper-III U-III o BLAST o Bioinformatics programme in India.	March-April	SC

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Department: Botany

Teaching Plan: Year-2021-22

Class: S.Y.B.Sc.

r. No.	Topics	Month	Faculty name
1.	Paper-I U-I Thallophyta (Algae) & Bryophyta General Characters of Division Phaeophyta: Distribution, Cell structure, range of thallus, Economic Importance.	June-July	NDS
2.	Paper-II U-I Cell Biology Ultra-Structure and functions of the following cell organelles: o Mitochondrion (membranes, cristae, F1 particles and matrix)	June-July	AYS
3.	Paper-III U-I Pharmacognosy and phytochemistry Introduction to pharmacopoeia	June-July	AKR
4.	Paper-I U-II Angiosperms Systematics: Objectives and Goals of Plant systematic • Plant Nomenclature	June-July	NDS
5.	Paper-II U-II Cytogenetics Variation in Chromosome structure (Chromosomal Aberrations) Definition, Origin, Cytological and Genetic Effects of the following: Deletions	June-July	ST
6.	Paper-III U-II Forestry and Economic Botany Forestry: Outline of types of forest in India	June-July	SS
7.	Paper-I U-III Modern Techniques to Study Plant Diversity Preservation methods: Dry and Wet method	June-July	ST
8.	Paper-II U-III Molecular Biology DNA replication: Modes of Replication, Messelson and Stahl Experment,	June-July	SC
9.	Paper-III U-III Industry based on plant products Aromatherapy- Introduction, Uses with few examples. Jojoba, Jemon	June-July	AKR

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Class: S.Y.B.Sc.

10.	Paper-I U-I Thallophyta (Algae) & Bryophyta • Structure, life cycle and systematic position of Sargassum	July-August	NDS
11.	Paper-II U-I Cell Biology Ultra Structure and functions of the following cell organelles: Peroxisomes and Glyoxysomes o Ribosomes (prokaryotic, eukaryotic and subunits)	July-August	AYS
12.	Paper-III U-I Pharmacognosy and phytochemistry Indian pharmacopoeia, Indian Herbal Pharmacopoeia and Ayurvedic Pharmacopoeia	July-August	AKR
13.	Paper-I U-II Angiosperms Taxonomy in relation to Anatomy Palynology Chemical constituents	July-August	NDS
14.	Paper-II U-II Cytogenetics Variation in Chromosome structure (Chromosomal Aberrations) Definition, Origin, Cytological and Genetic Effects of the following: Duplications, Inversions and Translocations.	July-August	ST
15.	Paper-III U-II Forestry and Economic Botany Forestry: Agro-forestry, Urban forestry, organic farming, Silviculture	July-August	SS
16.	Paper-I U-III Modern Techniques to Study Plant Diversity Microscopy – Principle and working of Light, and electron microscope.	July-August	ST
17.	Paper-II U-III Molecular Biology DNA replication in prokaryotes and eukaryotes- enzymes involved and molecular mechanism of replication.	July-August	SC
18.	Paper-III U-III Industry based on plant products Aromatherapy- Botanical and nutraceuticals -Spirulina, Vanillin, Garcinia indica/ Garcinia cambogia	July-August	AKR
19.	Paper-I U-I Thallophyta (Algae) & Bryophyta	August-September	NDS.

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Department: Botany

Teaching Plan: Year-2021-22

Class: S.Y.B.Sc.

	General Account of Class	BAR BALLER	
10	Anthocerotae and Musci		
20	Paper-II U-I Cell Biology Cell Division and its significance o Cell Cycle, structure of Interphase Nucleus (nuclear envelop, chromatin network, nucleolus and nucleoplasm) o Mitosis & Meiosis o Differences between Mitosis and Meiosis	August-September	AYS
21.	Paper-III U-I	August-September	AKR
	Pharmacognosy and phytochemistry Secondary Metabolites: Sources, properties, uses and adulterants, regional and seasonal variations		
22.	Paper-I U-II	August-September	NDS
	Angiosperms Taxonomy in relation to Anatomy Embryology Cytology Ecology		
23.	Paper-II U-II Cytogenetics Sex determination, Sex linked, sex Influenced and sex limited traits: Sex determination- Chromosomal Methods: heterogametic males and heterogametic females. Sex determination in monoecious and dioecious plants. Genic Balance Theory of sex determination in Drosophila, Lyon's Hypothesis of X chromosome inactivation. Sex linked- eye colour in Drosophila, Haemophilia, colour blindness Sex influenced- baldness in man Paper-III U-II	August-September  August-September	ST
24.	Forestry and Economic Botany Economic Botany: • Types of fibers: Jute and cotton, • Current trends in Fiber industries	August-september	33
25.	Paper-I U-III Modern Techniques to Study Plant Diversity Chromatography- Principles and techniques in paper and thin layer chromatography.	August-September	ST
26.	Paper-II U-III Molecular Biology Protein Synthesis: o Central dogma of	August-September	sc ful.

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Class: S.Y.B.Sc.

	Protein synthesis		
27.	Paper-III U-III Industry based on plant products Enzymes industry: Cellulases, Papain, Bromelain	August-September	AKR
28.	Paper-I U-I Thallophyta (Algae) & Bryophyta Lichens- Classification, Structure, Method of Reproduction, Economic Importance and Ecological Significance of Lichens.	September-October	NDS
29.	Paper-II U-I Cell Biology Differences between Mitosis and Meiosis • Nucleic Acids: Types, structure and functions of DNA and RNA	September-October	AYS
30.	Paper-III U-I Pharmacognosy and phytochemistry Adulterants: Saraca asoca, Polyalthia longifolia Terminalia arjuna, Terminalia tomentosa Bacopa monnieri, Centella asiatica Abrus, Glycyrrhiza Phyllanthus amarus (Bhuiamla)	September-October	AKR
31.	Paper-I U-II Angiosperms With the help of Bentham and Hooker's system of Classification for flowering plants study the vegetative, floral characters and economic importance of the following families: o Leguminosae o Asterace o Amaranthaceae o Palmae	September-October	NDS
32.	Paper-II U-II Cytogenetics Extranuclear Genetics Organelle heredity- o Chloroplast determines heredity- Plastid transmission in plants, Streptomycin resistance in Chlamydomonas. o Male sterility in maize	September-October	ST
33.	Paper-III U-II Forestry and Economic Botany Community ecology- Characters of community - Quantitative characters and qualitative characters	September-October	SS
34.	Paper-I U-III	September-October B	oldus

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Department: Botany

Teaching Plan: Year-2021-22

Class: S.Y.B.Sc.

No.	Modern Techniques to Study Plant Diversity Principles and techniques of Horizontal and Vertical electrophoresis		
35.	Paper-II U-III Molecular Biology Transcription in prokaryotes and eukaryotes: promoter sites, initiation, elongation and termination. o RNA processing: Adenylation & Capping.	September-October	SC
36.	Paper-III U-III Industry based on plant products  • Biofuels.	September-October	AKR

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Class: S.Y.B.Sc.

#### Semester-IV

Sr. No.	Topics	Month	Faculty name
	Seme	ester-IV	
1.	Paper-I U-I Thallophyta: Fungi, Plant Pathology and Lichens Fungi • General characters of APSomycetae	November-December	NDS
2.	Paper-II U-I Anatomy  Normal Secondary Growth in Dicotyledonous stem and root.	November-December	AYS
3.	Paper-III U-I Horticulture and Gardening Introduction to Horticulture: Branches of Horticulture	November-December	AKR
4.	Paper-I U-II Thallophyta: Fungi, Plant Pathology and Lichens Fungi Salient features and classification upto orders (with examples of each) of Psilophyta and Lepidophyta (G M Smith's system of classification to be followed)	November-December	NDS
5.	Paper-II U-II Plant Physiology and Plant Biochemistry • Respiration: Aerobic: Glycolysis, TCA Cycle, ETS & Energetic of respiration; Anaerobic respiration.	November-December	PS
6.	Paper-III U-II Biotechnology • Introduction to plant tissue culture o Laboratory organization and techniques in plant tissue culture	November-December	PS
7.	Paper-I U-III Gymnosperms • Salient features, classification up to orders (with examples of each) and economic importance of Coniferophyta (Chamberlain's system of classification to be followed)	November-December	NDS
8.	Paper-II U-III Ecology and Environmental Botany Biogeochemical Cycles- Carbon, Nitrogen and Water.	November-December	SS
9.	Paper-III U-III	November-December	Rentany

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	Biostatistics: The chi square test.		
10.	Paper-I U-I Structure, life cycle and systematic position of Erysiphe and Xylaria	December-January	NDS
11.	Paper-II U-I Growth rings, periderm, lenticels, tyloses, heart wood and sap wood.	December-January	AYS
12.	Paper-III U-I Types of garden o Formal and informal gardens	December-January	AKR
13.	Paper-I U-II Pteridophyta and Paleobotany Pteridophyta- Structure, life cycle and systematic position of Selaginella	December-January	NDS
14.	Paper-II U-II Plant Physiology and Plant Biochemistry Photorespiration	December-January	PS
15.	Paper-III U-II Introduction to plant tissue culture o Totipotency o Organogenesis	December-January	P5
16.	Paper-I U-III Structure life cycle and systematic position of Pinus	December-January	NDS
17.	Paper-II U-III Ecological factors: Concept of environmental factors.	December-January	SS
18.	Paper-III U-III Biostatistics: Correlation – Calculation of coefficient of correlation.	December-January	PS
19.	Paper-I U-I Thallophyta: Plant Pathology- Symptoms, causative organism, disease cycle and control measures of o Powdery mildew	January-February	NDS
20.	Paper-II U-I     Mechanical Tissue system o Tissues     providing mechanical strength and     support and their disposition	January-February	AYS
21.	Paper-III U-I  Types of garden  National Park: Sanjay Gandhi National Park.	January-February	AKR
22.	Paper-I U-II  Paleobotany- The geological time PSale	January-February	NDS

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23.	Paper-II U-II Plant Physiology and Plant Biochemistry Photoperiodism: Phytochrome Response and Vernalization with	January-February	PS
24.	Paper-III U-II Introduction to plant tissue culture o Organ culture – root cultures, meristem cultures, anther and pollen culture, embryo culture.	January-February	PS
25.	Paper-I U-III Structure and systematic position of the form genus Cordaites	January-February	NDS
26.	Paper-II U-III Soil as an edaphic factor, Soil composition, types of soil, soil formation, soil profile.	January-February	SS
27.	A STATE OF THE PARTY OF THE PAR	January-February	PS
28.	Paper-I U-I Thallophyta: Plant Pathology- Symptoms, causative organism, disease cycle and control measures of o Late blight of potato	February-March	NDS
29.		February-March	AYS
30.		February-March	AKR
31.	Paper-I U-II Formation and types of fossils	February-March	NDS
32.	Paper-II U-II Physico-chemical properties of phytochrome	February-March	PS
33.	Paper-III U-II  R-DNA technology- o Gene cloning	February-March	PS
34.	Paper-I U-III  Structure and systematic position of the form genus Cordaites	February-March	NDS
35.	Paper-II U-III Community ecology- Characters of community - Quantitative characters	February-March	SS

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	and qualitative characters		
36.	Paper-III U-III Biostatistics and Bioinformatics o Introduction to Bioinformatics- goal, need, PSope and limitation o Aims of Bioinformatics: Data organization, Tools of Bioinformatics- tools for web search, Data retrieval tools- Entrez, o BLAST o Bioinformatics programme in India.	February-March	PS
1.	Paper-I U-I Thallophyta: Fungi, Plant Pathology and Lichens Fungi • General characters of Ascomycetae	November-December	NDS
2.	Paper-II U-I Anatomy  • Normal Secondary Growth in Dicotyledonous stem and root.	November-December	AYS
3.	Paper-III U-I Horticulture and Gardening Introduction to Horticulture: Branches of Horticulture	November-December	AKR
4.	Paper-I U-II Thallophyta: Fungi, Plant Pathology and Lichens Fungi Salient features and classification upto orders (with examples of each) of Psilophyta and Lepidophyta (G M Smith's system of classification to be followed)	November-December	NDS
5.	Paper-II U-II Plant Physiology and Plant Biochemistry • Respiration: Aerobic: Glycolysis, TCA Cycle, ETS & Energetic of respiration; Anaerobic respiration.	November-December	PS
6.	Paper-III U-II Biotechnology • Introduction to plant tissue culture o Laboratory organization and techniques in plant tissue culture	November-December	SC
7.	Paper-I U-III Gymnosperms • Salient features, classification up to orders (with examples of each) and economic importance of Coniferophyta (Chamberlain's system	November-December	NDS Botter

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Class: S.Y.B.Sc.

	of classification to be followed)	The state of the s	
8.	Paper-II U-III Ecology and Environmental Botany Biogeochemical Cycles- Carbon, Nitrogen and Water.	November-December	SS
9.	Paper-III U-III Biostatistics: The chi square test.	November-December	sc
10.	Paper-I U-I Structure, life cycle and systematic position of Erysiphe and Xylaria	December-January	NDS
11.	Paper-II U-I Growth rings, periderm, lenticels, tyloses, heart wood and sap wood.	December-January	AYS
12.	Paper-III U-I Types of garden o Formal and informal gardens	December-January	AKR
13.	The state of the s	December-January	NDS
14.	Paper-II U-II Plant Physiology and Plant Biochemistry Photorespiration	December-January	PS
15.	Paper-III U-II Introduction to plant tissue culture o Totipotency o Organogenesis	December-January	SC
16.	Paper-I U-III Structure life cycle and systematic position of Pinus	December-January	NDS
17.	Paper-II U-III Ecological factors: Concept of environmental factors.	December-January	SS
18.	Paper-III U-III Biostatistics: Correlation – Calculation of coefficient of correlation.	December-January	SC
19.	Paper-I U-I Thallophyta: Plant Pathology- Symptoms, causative organism, disease cycle and control measures of o Powdery mildew	January-February	NDS
20.	Paper-II U-I     Mechanical Tissue system o Tissues providing mechanical strength and support and their disposition	January-February	AYS Botany
21.	Paper-III U-I	January-Februarient of Mahat	AKR

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22	Types of garden     National Park: Sanjay Gandhi     National Park.		
22.	Paleobotany- The geological time scale	January-February	NDS
23.	Paper-II U-II Plant Physiology and Plant Biochemistry Photoperiodism: Phytochrome Response and Vernalization with reference to flowering in higher plants	January-February	PS
24.	Paper-III U-II Introduction to plant tissue culture o Organ culture – root cultures, meristem cultures, anther and pollen culture, embryo culture.	January-February	SC
25.	Paper-I U-III Structure and systematic position of the form genus Cordaites	January-February	NDS
26.	Paper-II U-III Soil as an edaphic factor, Soil composition, types of soil, soil formation, soil profile.	January-February	SS
27.	Paper-III U-III Biostatistics and Bioinformatics • Bioinformatics o Information technology: History and tools of IT, Internet and its uses.	January-February	SC
28.	Paper-I U-I Thallophyta: Plant Pathology- Symptoms, causative organism, disease cycle and control measures of o Late blight of potato	February-March	NDS
29.	Paper-II U-I  Mechanical Tissue system o I-girders in aerial and underground organs	February-March	AYS
30.	Paper-III U-I o Botanical Garden: Veer Mata JijabaiUdyan (Victoria Garden)	February-March	AKR
31.	Paper-I U-II Formation and types of fossils	February-March	NDS
32.	Paper-II U-II Physico-chemical properties of phytochrome	February-March	PS
33.	Paper-III U-II  R-DNA technology-	February-March	rtment of Botan

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Department: Botany Teaching Plan: Year-2021-22

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	o Gene cloning	the state of the state of	
34.	Paper-I U-III  Structure of Cordaites	February-March	NDS
35.	Paper-II U-III Community ecology- Characters of community - Quantitative characters and qualitative characters	February-March	SS
36.	Paper-III U-III Biostatistics and Bioinformatics o Introduction to Bioinformatics-goal, need, scope and limitation o Aims of Bioinformatics: Data organization, Tools of Bioinformatics- tools for web search, Data retrieval tools-Entrez	February-March	SC
37.	Paper-I U-I Lichens- Classification, Structure, Method of Reproduction, Economic Importance and Ecological Significance of Lichens.	March-April	NDS
38.	Paper-II U-I Types of Vascular Bundles.	March-April	AYS
39.	Paper-III U-I Types of garden o National Park: Sanjay Gandhi National Park. o Botanical Garden: Veer Mata JijabaiUdyan (Victoria Garden)	March-April	AKR
40.	Paper-I U-II Structure and systematic position of form genus Rhynia	March-April	NDS
41.	Paper-II U-II Vernalization mechanisms and applications.	March-April	PS
42.	Paper-III U-II R-DNA technology- o Enzymes involved in Gene cloning o Vectors used for Gene cloning.	March-April	SC
43.	Paper-I U-III systematic position of the form genus Cordaites	March-April	NDS
44.	Paper-II U-III Community ecology- Characters of community - qualitative characters	March-April	SS
45.	Paper-III U-III o BLAST o Bioinformatics programme in India.	March-April	- sc

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Department: Botany

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Department: Botany Teaching Plan: Year-2022-23

Class: S.Y.B.Sc.

Sr. No.	Topics	Month	Faculty name
1.	Paper-I U-I Thallophyta (Algae) & Bryophyta General Characters of Division Phaeophyta: Distribution, Cell structure, range of thallus, Economic Importance.	June-July	NDS
2.	Paper-II U-I Cell Biology Ultra-Structure and functions of the following cell organelles: o Mitochondrion (membranes, cristae, F1 particles and matrix)	June-July	AYS
3.	Paper-III U-I Pharmacognosy and phytochemistry Introduction to pharmacopoeia	June-July	AKR
4.	Paper-I U-II Angiosperms Systematics: Objectives and Goals of Plant systematic • Plant Nomenclature	June-July	NDS
5.	Paper-II U-II Cytogenetics Variation in Chromosome structure (Chromosomal Aberrations) Definition, Origin, Cytological and Genetic Effects of the following: Deletions	June-July	ST
6.	Paper-III U-II Forestry and Economic Botany Forestry: Outline of types of forest in India	June-July	SS
7.	Paper-I U-III Modern Techniques to Study Plant Diversity Preservation methods: Dry and Wet method	June-July	ST
8.	Paper-II U-III Molecular Biology DNA replication: Modes of Replication, Messelson and Stahl Experment,	June-July	SC
9.	Paper-III U-III Industry based on plant products Aromatherapy- Introduction, Uses with few examples. Jojoba, lemon	June-July	ead Department of Bota Soverement of Maharashtra's Ismail Yusuf College of

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Department: Botany

Teaching Plan: Year-2022-23

10.	Paper-I U-I	July-August	NDS
	Thallophyta (Algae) & Bryophyta  • Structure, life cycle and systematic position of Sargassum		
11.	Paper-II U-I Cell Biology Ultra Structure and functions of the following cell organelles: Peroxisomes and Glyoxysomes o Ribosomes (prokaryotic, eukaryotic and subunits)	July-August	AYS
12.	Paper-III U-I Pharmacognosy and phytochemistry Indian pharmacopoeia, Indian Herbal Pharmacopoeia and Ayurvedic Pharmacopoeia	July-August	AKR
13.	Paper-I U-II Angiosperms Taxonomy in relation to Anatomy Palynology Chemical constituents	July-August	NDS
14.	Paper-II U-II Cytogenetics Variation in Chromosome structure (Chromosomal Aberrations) Definition, Origin, Cytological and Genetic Effects of the following: Duplications, Inversions and Translocations.	July-August	ST
15.	Paper-III U-II Forestry and Economic Botany Forestry: Agro-forestry, Urban forestry, organic farming, Silviculture	July-August	SS
16.	Paper-I U-III Modern Techniques to Study Plant Diversity Microscopy – Principle and working of Light, and electron microscope.	July-August	ST
17.	Paper-II U-III Molecular Biology DNA replication in prokaryotes and eukaryotes- enzymes involved and molecular mechanism of replication.	July-August	SC
18.	Paper-III U-III Industry based on plant products Aromatherapy- Botanical and nutraceuticals -Spirulina, Vanillin, Garcinia indica/ Garcinia cambogia	July-August	AKR
19.	Paper-I U-I Thallophyta (Algae) & Bryophyta	August-September	NDS

Department: Botany Teaching Plan: Year-2022-23

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	Anthocerotae and Musci		
20.	Paper-II U-I Cell Biology Cell Division and its significance o Cell Cycle, structure of Interphase Nucleus (nuclear envelop, chromatin network, nucleolus and nucleoplasm) o Mitosis & Meiosis o Differences between Mitosis and Meiosis	August-September	AYS
21.	Paper-III U-I Pharmacognosy and phytochemistry Secondary Metabolites: Sources, properties, uses and adulterants, regional and seasonal variations	August-September	AKR
22.	Paper-I U-II Angiosperms Taxonomy in relation to Anatomy Embryology Cytology Ecology	August-September	NDS
23.	Paper-II U-II Cytogenetics Sex determination, Sex linked, sex Influenced and sex limited traits: Sex determination- Chromosomal Methods: heterogametic males and heterogametic females. Sex determination in monoecious and dioecious plants. Genic Balance Theory of sex determination in Drosophila, Lyon's Hypothesis of X chromosome inactivation. Sex linked- eye colour in Drosophila, Haemophilia, colour blindness Sex Influenced- baldness in man	August-September	SC
24.	Paper-III U-II Forestry and Economic Botany Economic Botany: • Types of fibers: Jute and cotton, • Current trends in Fiber industries	August-September	SS
25.	Paper-I U-III Modern Techniques to Study Plant Diversity Chromatography- Principles and techniques in paper and thin layer chromatography.	August-September	ST
26.	CONTRACTOR OF THE PARTY OF THE	August-September	SC III III III III III III III III III I

Department: Botany

Teaching Plan: Year-2022-23

Class: S.Y.B.Sc.

1	Protein synthesis		
27.	Industry based on plant products Enzymes industry: Cellulases, Papain, Bromelain	August-September	AKR
28.	Paper-I U-I Thallophyta (Algae) & Bryophyta Lichens- Classification, Structure, Method of Reproduction, Economic Importance and Ecological Significance of Lichens.	September-October	NDS
29.	Paper-II U-I Cell Biology Differences between Mitosis and Meiosis • Nucleic Acids: Types, structure and functions of DNA and RNA	September-October	AYS
30.	Paper-III U-I Pharmacognosy and phytochemistry Adulterants: Saraca asoca, Polyalthia longifolia Terminalia arjuna, Terminalia tomentosa Bacopa monnieri, Centella asiatica Abrus, Glycyrrhiza Phyllanthus amarus (Bhuiamla)	September-October	AKR
31.	Paper-I U-II Angiosperms With the help of Bentham and Hooker's system of Classification for flowering plants study the vegetative, floral characters and economic importance of the following families: o Leguminosae o Asterace o Amaranthaceae o Palmae	September-October	NDS
32.	Paper-II U-II Cytogenetics Extranuclear Genetics Organelle heredity- o Chloroplast determines heredity - Plastid transmission in plants, Streptomycin resistance in Chlamydomonas. o Male sterility in maize	September-October	SC
33.	Paper-III U-II Forestry and Economic Botany Community ecology- Characters of community - Quantitative characters and qualitative characters	September-October	ss
34.	Paper-I U-III	September-October	

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Teaching Plan: Year-2022-23

Class: S.Y.B.Sc.

	Modern Techniques to Study Plant Diversity Principles and techniques of Horizontal and Vertical electrophoresis		
35.	Paper-II U-III Molecular Biology Transcription in prokaryotes and eukaryotes: promoter sites, initiation, elongation and termination. o RNA processing: Adenylation & Capping.	September-October	SC
36.	Paper-III U-III Industry based on plant products  • Biofuels.	September-October	AKR

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Teaching Plan: Year-2022-23

Class: S.Y.B.Sc.

#### Semester-IV

r. No.	Topics	Month	Faculty name
1.	Paper-I U-I Thallophyta: Fungi, Plant Pathology and Lichens Fungi • General characters of Ascomycetae	November-December	NDS
2.	Paper-II U-I Anatomy • Normal Secondary Growth in Dicotyledonous stem and root.	November-December	AYS
3,	Paper-III U-I Horticulture and Gardening Introduction to Horticulture: Branches of Horticulture	November-December	AKR
4.	Paper-I U-II Thallophyta: Fungi, Plant Pathology and Lichens Fungi Salient features and classification upto orders (with examples of each) of Psilophyta and Lepidophyta (G M Smith's system of classification to be followed)	November-December	NDS
5.	Paper-II U-II Plant Physiology and Plant Biochemistry • Respiration: Aerobic: Glycolysis, TCA Cycle, ETS & Energetic of respiration; Anaerobic respiration.	November-December	ST
6.	Paper-III U-II Biotechnology • Introduction to plant tissue culture o Laboratory organization and techniques in plant tissue culture	November-December	SC
7.	Paper-I U-III Gymnosperms • Salient features, classification up to orders (with examples of each) and economic importance of Coniferophyta (Chamberlain's system of classification to be followed)	November-December	NDS
8.	Paper-II U-III Ecology and Environmental Botany Biogeochemical Cycles- Carbon, Nitrogen and Water.	November-December	SS
9.	Paper-III U-III Biostatistics: The chi square test.	November-December	ST

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	Structure, life cycle and systematic position of Erysiphe and Xylaria		
11.	Paper-II U-I Growth rings, periderm, lenticels, tyloses, heart wood and sap wood.	December-January	AYS
12.	Paper-III U-I Types of garden o Formal and informal gardens	December-January	AKR
13.	Paper-I U-II Pteridophyta and Paleobotany Pteridophyta- Structure, life cycle and systematic position of Selaginella	December-January	NDS
14.	Paper-II U-II Plant Physiology and Plant Biochemistry Photorespiration	December-January	ST
15.	Paper-III U-II Introduction to plant tissue culture o Totipotency o Organogenesis	December-January	SC
16.	Paper-I U-III Structure life cycle and systematic position of Pinus	December-January	NDS
17.	Paper-II U-III Ecological factors: Concept of environmental factors.	December-January	SS
18.	Paper-III U-III Biostatistics: Correlation – Calculation of coefficient of correlation.	December-January	ST
19.	Paper-I U-I Thallophyta: Plant Pathology- Symptoms, causative organism, disease cycle and control measures of o Powdery mildew	January-February	NDS
20.	Paper-II U-I     Mechanical Tissue system o Tissues providing mechanical strength and support and their disposition	January-February	AYS
21.	Paper-III U-I  Types of garden o National Park: Sanjay Gandhi National Park.	January-February	AKR
22.	Paper-I U-II  Paleobotany- The geological time scale	January-February	NDS
23.	Paper-II U-II Plant Physiology and Plant	January-February	ST

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Department: Botany

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	Biochemistry Photoperiodism: Phytochrome Response and Vernalization with reference to flowering in higher plants		
24.	Paper-III U-II Introduction to plant tissue culture o Organ culture – root cultures, meristem cultures, anther and pollen culture, embryo culture.	January-February	SC
25.	Paper-I U-III Structure and systematic position of the form genus Cordaites	January-February	NDS
26.	Paper-II U-III Soil as an edaphic factor, Soil composition, types of soil, soil formation, soil profile.	January-February	SS
27.	Paper-III U-III Biostatistics and Bioinformatics • Bioinformatics o Information technology: History and tools of IT, Internet and its uses.	January-February	ST
28.	Paper-I U-I Thallophyta: Plant Pathology- Symptoms, causative organism, disease cycle and control measures of o Late blight of potato	February-March	NDS
29.	Paper-II U-I  Mechanical Tissue system o I-girders in aerial and underground organs	February-March	AYS
30.	Paper-III U-I o Botanical Garden: Veer Mata JijabaiUdyan (Victoria Garden)	February-March	AKR
31.	Paper-I U-II Formation and types of fossils	February-March	NDS
32.	Paper-II U-II Physico-chemical properties of phytochrome	February-March	ST
33.	Paper-III U-II  R-DNA technology- o Gene cloning	February-March	SC
34.	Paper-I U-III     Structure and systematic position of the form genus Cordaites	February-March	NDS
35.	Paper-II U-III Community ecology- Characters of community - Quantitative characters and qualitative characters	February-March	SS
36.	Paper-III U-III	February-March	ST Bolany

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	Biostatistics and Bioinformatics o Introduction to Bioinformatics-goal, need, scope and limitation o Aims of Bioinformatics: Data organization, Tools of Bioinformatics- tools for web search, Data retrieval tools- Entrez, o BLAST o Bioinformatics programme in India.		
37.	Paper-I U-I Lichens- Classification, Structure, Method of Reproduction, Economic Importance and Ecological Significance of Lichens.	March-April	NDS
38.	Paper-II U-I Types of Vascular Bundles.	March-April	AYS
39.	Paper-III U-I Types of garden o National Park: Sanjay Gandhi National Park. o Botanical Garden: Veer Mata JijabaiUdyan (Victoria Garden)	March-April	AKR
40.	Paper-I U-II Structure and systematic position of form genus Rhynia	March-April	NDS
41.	Paper-II U-II Vernalization mechanisms and applications.	March-April	PS
42.	Paper-III U-II R-DNA technology- o Enzymes involved in Gene cloning o Vectors used for Gene cloning.	March-April	SC
43.	Paper-I U-III systematic position of the form genus Cordaites	March-April	NDS
44.	Paper-II U-III Community ecology- Characters of community - qualitative characters	March-April	55
45.	Paper-III U-III o BLAST o Bioinformatics programme in India.	March-April	SC

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#### Government of Maharashtra's

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Lecture Plan: Year-2018-19

(Semester-V)

Department: Botany

Name of the Lecturer: Mr. Nitin Shelake

Subject / Paper: Paper -I

Units - I, II, III, IV

Class: T.Y. Bsc

(Term: 18th June 2018 to 5th November 2018)

Lectu re No.	Key Points to be Covered:					Uni. allotted
	Unit I	Unit II	Unit III	Unit IV		Lecture
1	Introduction to Microbiology Definition and Scope of Microbiology Historical Overview of Microbiology Importance of Microbes in Various Fields	Introduction to Algae Definition and Overview of Algae Importance of Algae in Aquatic Ecosystems and Beyond General Characteristics of Algae	Introduction to Fungi Definition and Overview of Fungi Importance and Economic Significance General Characteristics of Fungi	Introduction to Plant Pathology Overview of plant pathology Importance of studying plant diseases Basic concepts and terminology	June	15 X 4 = 60 Lectures
2	Classification of Microbes Introduction to Different Types of Microbes: Viruses, Bacteria, Algae, Fungi, Protozoa, Mycoplasma, and Actinomycetes, Characteristics and Distinctive Features of Each Microbial Type	Rhodophyta: Classification and General Characters of Division Rhodophyta Distribution of Rhodophyta Species, Cell Structure and Pigments of Rhodophyta, Reserve Food and Thallus Range in Rhodophyta,	Basidiomycetes Introduction to Basidiomycetes Classification and General Characters	Study of Plant Diseases - White Rust (Albugo sp.) Introduction to white rust, Causative organism (Albugo sp.) Symptoms, predisposing factors, and disease cycle Control measures for white rust	July	
3	Viruses Structure and Characteristics of Viruses Viral Replication Cycle Viral Pathogenesis and Diseases	Reproduction in Rhodophyta: Asexual and, Sexual, Alternation of Generations in Rhodophyta, Economic Importance of Rhodophyta	Morphological Features and Structures Basidiomycetes	Tikka Disease of Groundnut (Cercospora)., Introduction to Tikka disease., Causative organism (Cercospora) Symptoms, predisposing factors, and disease cycle Control measures for Tikka disease		
4	Bacteria Morphology and Structure of Bacteria	Structure and Life Cycle of Polysiphonia Detailed Examination of	Life Cycle of Agaricus : Morphology and Anatomy	Damping Off Disease (Pythium) , Introduction to damping off disease , Head Depart	And nent of Bo	tany

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Dep	artment: Botany	Lecture	e Plan: Year-2018-19	Cli	ass: T.Y. Bsc	
	Bacterial Growth and Reproduction Role of Bacteria in Ecology and Industry	Polysiphonia: Morphology and Anatomy	Germination and Hyphal Growth Spore Formation Formation of Basidiocarp (Mushroom)	Causative organism (Pythium) ,Symptoms, predisposing factors, and disease cycle, Control measures for damping off disease		
5	Algae Overview of Algae; Definition and Characteristics Classification of Algae Importance of Algae in Aquatic Ecosystems and Biotechnology	Life Cycle of Polysiphonia: Asexual and Sexual Reproduction	Reproduction in Agaricus Basidiospore Release	Citrus Canker (Xanthomonas sp.) Introduction to citrus canker , Causative organism (Xanthomonas sp.) , Symptoms, predisposing factors, and disease cycle, Control measures for citrus canker		
6	Fungi :Introduction to Fungi: Characteristics and Classification Structure and Function of Fungal Cells Ecological Roles and Economic Importance of Fungi	Structure and Life Cycle of Batrachospermum Anatomy and Morphology of Batrachospermum	Ecological Roles and Economic Importance of Agaricus	Leaf Curl (Leaf Curl Virus), Introduction to leaf curl disease., Causative agent (Leaf curl virus), Symptoms, predisposing factors, and disease cycle., Control measures for leaf curl disease	August	
7	Protozoa Characteristics and Diversity of Protozoa Protozoan Morphology and Locomotion Protozoan Parasites and Diseases	Reproductive Strategies and Life Cycle of Batrachospermum	Life Cycle of Puccinia Spore Formation and Dispersal Infection of Host Plant Development of urediniospores ( Ureial Satge)	Biological Control Methods of Plant Diseases., Overview of biological control methods, Introduction to biocontrol agents (e.g., beneficial microbes, predators). Application and efficacy of biological control in disease management		· k
8	Mycoplasma and Actinomycetes Introduction to Mycoplasma and Actinomycetes Unique Features and	Classification and General Characters of Xanthophyta Overview of Division Xanthophyta , Distribution and Habitat of	Life Cycle of Puccinia Production of teliospores ( Tilial Stage) on wheat, and	Study of Physical control methods of plant diseases.		

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Department: Botany Lecture Plan: Year-2018-19 Class: T.Y. Bsc

	Adaptations of Mycoplasma Importance of Actinomycetes in Antibiotic Productio	Xanthophyta Species, Cell Structure and Pigments of Xanthophyta: Reserve Food and Thallus Range in Xanthophyta., Modes of Reproduction: Asexual and Sexual., Alternation of			
9	Culturing Techniques Principles of Microbial Culturing Sterilization Methods: Physical and Chemical Culture Media: Types and Preparation	Generations in  Xanthophyta, Economic Importance of Xanthophyta., Structure and Life Cycle of Vaucheria Anatomy and Morphology of Vaucheria	Life Cycle of Puccinia Production of aeciospores on barberry.	Study of Chemical control methods of plant diseases.	
10	Staining Techniques Basics of Microbial Staining Differential Staining: Gram Staining and Acid-fast Staining., Specialized Staining Techniques for Microbial Identification	Reproduction in Vaucheria: Asexual and Sexual Life Cycle of Vaucheria	Sexual reproduction in Puccinia (spermatia ) Plant Diseases Caused by Puccinia and Control Measures	Integrated Disease Management (IDM) Concept of integrated disease management Integration of physical, chemical, and biological control methods	September
11	Colony Characteristics Identification of Microbial Colonies Characteristics Used for Colony Differentiation Interpretation of Colony Morphology	Classification and General Characters of Bacillariophyta Introduction to Division Bacillariophyta Global Distribution of Bacillariophyta Species Cell Structure and Pigments in Bacillariophyta Reserve Food and Thallus	Deuteromycetes (Deuteromycota) Introduction to Deuteromycetes Classification and General Characters Significance and Role in Nature	Epidemiology of Plant Diseases Overview of plant disease epidemiology Factors influencing disease spread and severity Disease forecasting and management strategies	

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		Range in Bacillariophyta			100
12	Pure Cultures Importance of Pure Cultures in Microbiology Techniques for Isolation and Maintenance of Pure Cultures Preservation Methods for Long-term Culture Storage	Reproductive Strategies: Asexual and Sexual Alternation of Generations in Bacillariophyta Economic Importance of Bacillariophyta	Life Cycle of Alternaria Morphological Features of Alternaria	Plant Disease Resistance and Host Plant Resistance Introduction to plant disease resistance Types of resistance mechanisms (e.g., innate, induced) Breeding strategies for developing resistant cultivars	
13	Aseptic Techniques Principles and Practices of Aseptic Technique Sterile Handling of Microbial Cultures and Equipment Preventing Contamination in Microbiological Work	Structure and Life Cycle of Pinnularia Anatomy and Morphology of Pinnularia	Asexual Reproduction: Conidia Formation and Dispersal of Alternaria	Emerging Plant Diseases and Global Challenges Overview of emerging plant diseases Factors contributing to disease emergence and spread Challenges and strategies for global disease management	
14	Microbial Growth Kinetics Growth Curve of Microbial Populations ., Factors Influencing Microbial Growth Measurement and Control of Microbial Growth	Reproductive Patterns and Life Cycle of Pinnularia	Pathogenicity and Disease Development of Alternaria	Emerging Plant Diseases and Global Challenges Overview of emerging plant diseases	October
15	Applied Microbiology Applications of Microbiology in Various Fields: Medicine, Agriculture, Industry, and Environmental Protection	Review of Previous Lectures and Concepts	Applied Mycology Industrial Applications of Fungi: Biotechnology and Bioremediation Medical Mycology: Fungal Infections and Treatments	Review and Discussion Recap of key concepts covered in the course Student presentations or discussions on related topics	

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Class: T.Y. Bsc

Department: Botany

Lecture Plan: Year-2018-19

Class: T.Y. Bsc

Name of the Lecturer: Mr. NItin Shelake

(Semester-VI)

Subject / Paper: Paper -I

Units - I, II, III, IV

(Term: 26th Nov. 2018 to 4th May 2019)

Lect ure		Expected Months	Uni. allotted				
No.	Unit I	Unit II	Unit III	Unit IV		Lecture	
1	Introduction to Bryophytes Overview of Bryophytes Importance of Bryophytes in ecosystems Brief introduction to the G. M. Smith Classification system	Introduction to Pteridophytes Overview of Pteridophytes Importance of Pteridophytes in ecosystems Brief introduction to the G. M. Smith Classification system	Introduction to Applied Aspects of Bryophytes and Pteridophytes Overview of the course objectives and syllabus Importance of studying applied aspects of Bryophytes and Pteridophytes Introduction to key concepts: ecology, economic importance, indicators, evolution	Introduction to Gymnosperms Overview of Gymnosperms Historical background and significance Introduction to Chamberlain's Classification System	December	December	15 X 4 = 60 L
2	Introduction to Marchantia Taxonomy and classification of Marchantia with reasons Morphology of Marchantia	Introduction to Lepidophyta (Lycopodium) Taxonomy and classification of Lycopodium	Ecology of Bryophytes Habitat preferences and adaptations of Bryophytes	Life Cycle of Thuja Taxonomy and classification of Thuja			
3	Anatomy of Marchantia Asexual / Vegetative Reproduction in Marchantia	Morphology and Anatomy of Lycopodium	Role of Bryophytes in ecosystem processes Interactions with other organisms and environmental factors	Life Cycle of Thuja Morphology and anatomy of Thuja			
4	Life Cycle of Marchantia (Gametophyte) Introduction to the gametophyte generation Gametophyte structure and function Gametophyte development and growth	Gametophyte generation: structure and function Male and Female Gametophyte	Economic Importance of Bryophytes Commercial uses of Bryophytes: horticulture, medicine, cosmetics, etc. Contributions to ecosystem services and biodiversity conservation	Life Cycle of Thuja Reproductive structures and processes in Thuja	January		

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Department: Botany

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5	Life Cycle of Marchantia (Sporophyte) Introduction to the sporophyte generation Sporophyte structure and function	Sporophyte generation: structure and function and development	Bryophytes as Indicators Use of Bryophytes in environmental monitoring and assessment Indicators of habitat quality, pollution, and climate change	Life Cycle of Thuja Sporophyte generation: structure, function, and development Gametophyte generation: structure, function, and development Alternation of generations in Thuja	
6	Sporophyte development and growth Alternation of Generation in Marchantia	Introduction to Calamophyta (Equisetum) Taxonomy and classification of Equisetum	Evolution of Sporophyte and Gametophyte in Bryophytes Evolutionary history of Bryophytes	Life Cycle of Thuja Sprophyte generation: structure, function, and development Gametophyte generation: structure, function, and development Alternation of generations in Thuja	
	Introduction to <i>Pelia</i> Taxonomy and classification of Pelia with reasons, Morphology of Pelia	Morphology And anatomy of Equisetum	Comparative morphology and development of sporophyte and gametophyte generations Significance of alternation of generations in Bryophytes	Life Cycle of Gnetum Taxonomy and classification of Gnetum	
3	Anatomy of Pelia ia Asexual / Vegetative Reproduction in Pelia	Reproduction in Equisetum, Equisetum Gametophyte structure and function Male Gametophyte, and Development	Economic Importance of Pteridophytes Commercial uses of Pteridophytes: ornamental plants, food, medicine, etc. Contributions to ecosystem services and restoration projects	Life Cycle of Gnetum Morphology and anatomy of Gnetum	February
)	Life Cycle of Pelia (Gametophyte)	Equisetum Gametophyte generation: structure and	Diversity and Distribution of Indian Pteridophytes	Life Cycle of Gnetum Reproductive structures and	

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	Introduction to the gametophyte generation Gametophyte structure and function Gametophyte development and growth	function Female Gametophyte and Development	Overview of Pteridophyte diversity in India	processes in Gnetum	
10	Life Cycle of Pelia (Sporophyte) Introduction to the sporophyte generation Sporophyte structure and function	Equisetum Sporophyte generation: structure and function and Development	Factors influencing distribution patterns  Conservation status and threats to Indian Pteridophytes	Life Cycle of Gnetum Sporophyte generation: structure, function, and development Gametophyte generation: structure, function, and development Alternation of generations in Gnetum	
11	Sporophyte development and growth & Alternation of Generation in <i>Pelia</i>	Introduction to Pterophyta  Taxonomy and classification of Pterophyta  Morphology of Adiantum and Marsilea	Types of Sori and Evolution of Sori in Pteridophytes Definition and significance of sori in Pteridophytes	Life Cycle of Ephedra Taxonomy and classification of Ephedra	
12	Introduction to Sphagnum Taxonomy and classification of Sphagnum with reasons Morphology of Sphagnum	Introduction to the life cycle of Adiantum Gametophyte generation: structure and function and development of Male and female gametophyte	Diversity of sorus types and their evolutionary adaptations Role of sori in reproductive strategies and dispersal	Life Cycle of Ephedra Morphology and anatomy of Ephedra	March
13	Anatomy of Sphagnum ia Asexual / Vegetative Reproduction in Sphagnum	Sporophyte generation of Adiantum: structure and function and development	applications of Bryophytes and Pteridophytes in various fields such as forestry, agriculture, pharmaceuticals, and environmental management	Life Cycle of Ephedra Reproductive structures and processes in Ephedra	
14	Life Cycle of Sphagnum	Introduction to the life cycle of	Summary of key takeaways and	Life Cycle of Ephedra	

Head Department of Botany

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College of

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Department: Botany

Lecture Plan: Year-2018-19

Class: T.Y. Bsc

	(Gametophyte) Introduction to the gametophyte generation Gametophyte structure and function Gametophyte development and growth	Marsilea Gametophyte generation: structure and function and development of Male and female gametophyte	conclusion of the course	Sporophyte generation: structure, function, and development Gametophyte generation: structure, function, and development Alternation of generations in Ephedra	
15	Life Cycle of Sphagnum (Sporophyte) Introduction to the sporophyte generation Sporophyte structure and function Sporophyte development and growth	Sporophyte generation Marsilea : structure and function and development	Revision of the course	Economic Importance of Gymnosperms Timber and wood products Medicinal uses Ornamental and landscaping value Ecological significance and conservation efforts	

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Department: Botany

Name of the Lecturer: Mr. Nitin Shelake

Lecture Plan: Year-2019-20

(Semester-V)

Subject / Paper: Paper -I

Units - I, II, III, IV

Class: T.Y. Bsc

(Term: 6th June 2019 to 24th October 2019)

Lectu re No.		Expected Months	Uni. allotted Lecture			
	Unit I	Unit II	Unit III	Unit IV		
1	Introduction to Microbiology Definition and Scope of Microbiology Historical Overview of Microbiology Importance of Microbes in Various Fields	Introduction to Algae Definition and Overview of Algae Importance of Algae in Aquatic Ecosystems and Beyond General Characteristics of Algae	Introduction to Fungi Definition and Overview of Fungi Importance and Economic Significance General Characteristics of Fungi	Introduction to Plant Pathology Overview of plant pathology Importance of studying plant diseases Basic concepts and terminology	June	15 X 4 =60 Lecture
2	Classification of Microbes Introduction to Different Types of Microbes: Viruses, Bacteria, Algae, Fungi, Protozoa, Mycoplasma, and Actinomycetes, Characteristics and Distinctive Features of Each Microbial Type	Rhodophyta: Classification and General Characters of Division Rhodophyta Distribution of Rhodophyta Species, Cell Structure and Pigments of Rhodophyta, Reserve Food and Thallus Range in Rhodophyta,	Basidiomycetes Introduction to Basidiomycetes Classification and General Characters	Study of Plant Diseases - White Rust (Albugo sp.) Introduction to white rust, Causative organism (Albugo sp.) Symptoms, predisposing factors, and disease cycle Control measures for white rust		
3	Viruses Structure and Characteristics of Viruses Viral Replication Cycle Viral Pathogenesis and Diseases	Reproduction in Rhodophyta: Asexual and Sexual, Alternation of Generations in Rhodophyta, Economic Importance of Rhodophyta	Morphological Features and Structures Basidiomycetes	Tikka Disease of Groundnut (Cercospora)., Introduction to Tikka disease., Causative organism (Cercospora) Symptoms, predisposing factors, and disease cycle Control measures for Tikka disease		
4	Bacteria Morphology and Structure of	Structure and Life Cycle of Polysiphonia	Life Cycle of Agaricus : Morphology and Anatomy	Damping Off Disease (Pythium)	July	

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Department: Botany

Lecture Plan: Year-2019-20

Class: T.Y. Bsc

	Bacteria Bacterial Growth and Reproduction Role of Bacteria in Ecology and Industry	Detailed Examination of Polysiphonia: Morphology and Anatomy	Germination and Hyphal Growth Spore Formation Formation of Basidiocarp (Mushroom)	, Introduction to damping off disease , Causative organism (Pythium) ,Symptoms, predisposing factors, and disease cycle, Control measures for damping off disease	
5	Algae Overview of Algae: Definition and Characteristics Classification of Algae Importance of Algae in Aquatic Ecosystems and Biotechnology	Life Cycle of Polysiphonia: Asexual and Sexual Reproduction	Reproduction in Agaricus Basidiospore Release	Citrus Canker (Xanthomonas sp.) Introduction to citrus canker, Causative organism (Xanthomonas sp.), Symptoms, predisposing factors, and disease cycle, Control measures for citrus canker	
6	Fungi :Introduction to Fungi: Characteristics and Classification Structure and Function of Fungal Cells Ecological Roles and Economic Importance of Fungi	Structure and Life Cycle of Batrachospermum Anatomy and Morphology of Batrachospermum	Ecological Roles and Economic Importance of Agaricus	Leaf Curl (Leaf Curl Virus), Introduction to leaf curl disease., Causative agent (Leaf curl virus), Symptoms, predisposing factors, and disease cycle., Control measures for leaf curl disease	
7	Protozoa Characteristics and Diversity of Protozoa Protozoan Morphology and Locomotion Protozoan Parasites and Diseases	Reproductive Strategies and Life Cycle of Batrachospermum	Life Cycle of Puccinia Spore Formation and Dispersal Infection of Host Plant Development of urediniospores ( Ureial Satge)	Biological Control Methods of Plant Diseases., Overview of biological control methods, Introduction to biocontrol agents (e.g., beneficial microbes, predators). Application and efficacy of biological control in disease management	
8	Mycoplasma and Actinomycetes Introduction to Mycoplasma	Classification and General Characters of Xanthophyta Overview of Division	Life Cycle of Puccinia Production of teliospores ( Tilial Stage) on wheat,	Study of Physical control methods of plant diseases.	August

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Department: Botany Lecture Plan: Year-2019-20 Class: T.Y. Bsc

	and Actinomycetes Unique Features and Adaptations of Mycoplasma Importance of Actinomycetes in Antibiotic Productio	Xanthophyta, Distribution and Habitat of Xanthophyta Species, Cell Structure and Pigments of Xanthophyta: Reserve Food and Thallus Range in Xanthophyta., Modes of Reproduction: Asexual and Sexual., Alternation of Generations in	and	
9	Culturing Techniques Principles of Microbial Culturing Sterilization Methods: Physical and Chemical Culture Media: Types and Preparation	Xanthophyta, Economic Importance of Xanthophyta., Structure and Life Cycle of Vaucheria Anatomy and Morphology of Vaucheria	Life Cycle of Puccinia Production of aeciospores on barberry.	Study of Chemical control methods of plant diseases.
10	Staining Techniques Basics of Microbial Staining Differential Staining: Gram Staining and Acid-fast Staining., Specialized Staining Techniques for Microbial Identification	Reproduction in Vaucheria: Asexual and Sexual Life Cycle of Vaucheria	Sexual reproduction in Puccinia (spermatia ) Plant Diseases Caused by Puccinia and Control Measures	Integrated Disease Management (IDM) Concept of integrated disease management Integration of physical, chemical, and biological control methods
11	Colony Characteristics Identification of Microbial Colonies Characteristics Used for Colony Differentiation Interpretation of Colony Morphology	Classification and General Characters of Bacillariophyta Introduction to Division Bacillariophyta Global Distribution of Bacillariophyta Species Cell Structure and Pigments in	Deuteromycetes (Deuteromycota) Introduction to Deuteromycetes Classification and General Characters Significance and Role in Nature	Epidemiology of Plant Diseases Overview of plant disease epidemiology Factors influencing disease spread and severity Disease forecasting and management strategies

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Department: Botany Lecture Plan: Year-2019-20 Class: T.Y. Bsc

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		Bacillariophyta Reserve Food and Thallus Range in Bacillariophyta			
12	Pure Cultures Importance of Pure Cultures in Microbiology Techniques for Isolation and Maintenance of Pure Cultures Preservation Methods for Long-term Culture Storage	Reproductive Strategies: Asexual and Sexual Alternation of Generations in Bacillariophyta Economic Importance of Bacillariophyta	Life Cycle of Alternaria Morphological Features of Alternaria	Plant Disease Resistance and Host Plant Resistance Introduction to plant disease resistance Types of resistance mechanisms (e.g., innate, induced) Breeding strategies for developing resistant cultivars	September
13	Aseptic Techniques Principles and Practices of Aseptic Technique Sterile Handling of Microbial Cultures and Equipment Preventing Contamination in Microbiological Work	Structure and Life Cycle of Pinnularia Anatomy and Morphology of Pinnularia	Asexual Reproduction: Conidia Formation and Dispersal of Alternaria	Emerging Plant Diseases and Global Challenges Overview of emerging plant diseases Factors contributing to disease emergence and spread Challenges and strategies for global disease management	
14	Microbial Growth Kinetics Growth Curve of Microbial Populations ., Factors Influencing Microbial Growth Measurement and Control of Microbial Growth	Reproductive Patterns and Life Cycle of Pinnularia	Pathogenicity and Disease Development of Alternaria	Emerging Plant Diseases and Global Challenges Overview of emerging plant diseases	
15	Applied Microbiology Applications of Microbiology in Various Fields: Medicine, Agriculture, Industry, and Environmental Protection	Review of Previous Lectures and Concepts	Applied Mycology Industrial Applications of Fungi: Biotechnology and Bioremediation Medical Mycology: Fungal Infections and Treatments	Review and Discussion Recap of key concepts covered in the course Student presentations or discussions on related topics	

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# Government of Maharashtra's

Ismail Yusuf College of Arts, Science & Commerce,

Lecture Plan: Year-2019-20

(Semester-VI) Subject / Paper: Paper -I

Units – I, II, III, IV

Class: T.Y. Bsc

Name of the Lecturer: Mr. Nitin Shelake

Department: Botany

(Term: 15<sup>th</sup> November 2019 to 2<sup>nd</sup> May 2020)

Lect ure		Key Points t	o be Covered:		Expected Months	Uni. allotted
No.	Unit I	Unit 11	Unit III	Unit IV		Lecture
1	Introduction to Bryophytes Overview of Bryophytes Importance of Bryophytes in ecosystems Brief introduction to the G. M. Smith Classification system	Introduction to Pteridophytes Overview of Pteridophytes Importance of Pteridophytes in ecosystems Brief introduction to the G. M. Smith Classification system	Introduction to Applied Aspects of Bryophytes and Pteridophytes Overview of the course objectives and syllabus Importance of studying applied aspects of Bryophytes and Pteridophytes Introduction to key concepts: ecology, economic importance, indicators, evolution	Introduction to Gymnosperms Overview of Gymnosperms Historical background and significance Introduction to Chamberlain's Classification System	Novembe r	15 X 4 = 60 L
2	Introduction to Marchantia Taxonomy and classification of Marchantia with reasons Morphology of Marchantia	Introduction to Lepidophyta (Lycopodium) Taxonomy and classification of Lycopodium	Ecology of Bryophytes Habitat preferences and adaptations of Bryophytes	Life Cycle of Thuja Taxonomy and classification of Thuja		
3	Anatomy of Marchantia Asexual / Vegetative Reproduction in Marchantia	Morphology and Anatomy of Lycopodium	Role of Bryophytes in ecosystem processes Interactions with other organisms and environmental factors	Life Cycle of Thuja Morphology and anatomy of Thuja	December	
4	Life Cycle of Marchantia (Gametophyte) Introduction to the gametophyte generation Gametophyte structure and function Gametophyte development and growth	Gametophyte generation: structure and function Male and Female Gametophyte	Economic Importance of Bryophytes Commercial uses of Bryophytes: horticulture, medicine, cosmetics, etc. Contributions to ecosystem services and biodiversity conservation Go.	Life Cycle of Thuja Reproductive structures and processes in Thuja  And Processes in Thuja		

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Department: Botany

Lecture Plan: Year-2019-20

Class: T.Y. Bsc

5	Life Cycle of Marchantia (Sporophyte) Introduction to the sporophyte generation Sporophyte structure and function	Sporophyte generation: structure and function and development	Bryophytes as Indicators Use of Bryophytes in environmental monitoring and assessment Indicators of habitat quality, pollution, and climate change	Life Cycle of Thuja Sporophyte generation: structure, function, and development Gametophyte generation: structure, function, and development Alternation of generations in Thuja	
6	Sporophyte development and growth Alternation of Generation in Marchantia	Introduction to Calamophyta (Equisetum) Taxonomy and classification of Equisetum	Evolution of Sporophyte and Gametophyte in Bryophytes Evolutionary history of Bryophytes	Life Cycle of Thuja Sprophyte generation: structure, function, and development Gametophyte generation: structure, function, and development Alternation of generations in Thuja	
7	Introduction to Pelia Taxonomy and classification of Pelia with reasons, Morphology of Pelia	Morphology And anatomy of Equisetum	Comparative morphology and development of sporophyte and gametophyte generations Significance of alternation of generations in Bryophytes	Life Cycle of Gnetum Taxonomy and classification of Gnetum	January
8	Anatomy of <i>Pelia</i> ia Asexual / Vegetative Reproduction in <i>Pelia</i>	Reproduction in Equisetum, Equisetum Gametophyte structure and function Male Gametophyte, and Development	Economic Importance of Pteridophytes Commercial uses of Pteridophytes: ornamental plants, food, medicine, etc. Contributions to ecosystem services and restoration projects	Life Cycle of Gnetum Morphology and anatomy of Gnetum	
9	Life Cycle of Pelia (Gametophyte)	Equisetum Gametophyte generation: structure and	Diversity and Distribution of Indian Pteridophytes Botany	Life Cycle of Gnetum Reproductive structures and	

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Department: Botany

Lecture Plan: Year-2019-20

Class: T.Y. Bsc

Dep	artificant, botany	Lecture 11	all. 1eat-2019-20	Glass, I	111 6000
	Introduction to the gametophyte generation Gametophyte structure and function Gametophyte development and growth	function Female Gametophyte and Development	Overview of Pteridophyte diversity in India	processes in Gnetum	
10	Life Cycle of Pelia (Sporophyte) Introduction to the sporophyte generation Sporophyte structure and function	Equisetum Sporophyte generation: structure and function and Development	Factors influencing distribution patterns  Conservation status and threats to Indian Pteridophytes	Life Cycle of Gnetum Sporophyte generation: structure, function, and development Gametophyte generation: structure, function, and development Alternation of generations in Gnetum	
11	Sporophyte development and growth & Alternation of Generation in Pelia	Introduction to Pterophyta  Taxonomy and classification of Pterophyta  Morphology of Adiantum and Marsilea	Types of Sori and Evolution of Sori in Pteridophytes Definition and significance of sori in Pteridophytes	Life Cycle of Ephedra Taxonomy and classification of Ephedra	February
12	Introduction to Sphagmun Taxonomy and classification of Sphagnum with reasons Morphology of Sphagnum	Introduction to the life cycle of Adiantum Gametophyte generation: structure and function and development of Male and female gametophyte	Diversity of sorus types and their evolutionary adaptations Role of sori in reproductive strategies and dispersal	Life Cycle of Ephedra Morphology and anatomy of Ephedra	
13	Anatomy of Sphagnum ia Asexual / Vegetative Reproduction in Sphagnum	Sporophyte generation of Adiantum : structure and function and development	applications of Bryophytes and Pteridophytes in various fields such as forestry, agriculture, pharmaceuticals, and environmental management	Life Cycle of Ephedra Reproductive structures and processes in Ephedra	
14	Life Cycle of Sphagnum	Introduction to the life cycle of	Summary of ken telepropages and	Life Cycle of Ephedra	

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Department: Botany

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Class: T.Y. Bsc

	(Gametophyte) Introduction to the gametophyte generation Gametophyte structure and function Gametophyte development and growth	Marsilea Gametophyte generation: structure and function and development of Male and female gametophyte	conclusion of the course	Sporophyte generation: structure, function, and development Gametophyte generation: structure, function, and development Alternation of generations in Ephedra		
15	5 Life Cycle of Sphagnum (Sporophyte) Introduction to the sporophyte generation Sporophyte structure and function Sporophyte development and growth	Sporophyte generation Marsilea : structure and function and development	Revision of the course	Economic Importance of Gymnosperms Timber and wood products Medicinal uses Ornamental and landscaping value Ecological significance and conservation efforts	March	
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Lecture Plan: Year-2020-21

Department: Botany

Name of the Lecturer: Mr. Nitin Shelake

(Semester-V) Subject / Paper: Paper -I

Units - I, II, III, IV

Class: T.Y. Bsc

(Term: 07th August 2020 to 31st December 2020)

Lectu re No.	Key Points to be Covered:					Uni. allotted Lecture
	Unit I	Unit II	Unit III	Unit IV		
1	Introduction to Microbiology Definition and Scope of Microbiology Historical Overview of Microbiology Importance of Microbes in Various Fields	Introduction to Algae Definition and Overview of Algae Importance of Algae in Aquatic Ecosystems and Beyond General Characteristics of Algae	Introduction to Fungi Definition and Overview of Fungi Importance and Economic Significance General Characteristics of Fungi	Introduction to Plant Pathology Overview of plant pathology Importance of studying plant diseases Basic concepts and terminology	August	15 X 4 = 60 L
2	Classification of Microbes Introduction to Different Types of Microbes: Viruses, Bacteria, Algae, Fungi, Protozoa, Mycoplasma, and Actinomycetes, Characteristics and Distinctive Features of Each Microbial Type	Rhodophyta: Classification and General Characters of Division Rhodophyta Distribution of Rhodophyta Species, Cell Structure and Pigments of Rhodophyta, Reserve Food and Thallus Range in Rhodophyta,	Basidiomycetes Introduction to Basidiomycetes Classification and General Characters	Study of Plant Diseases - White Rust (Albugo sp.) Introduction to white rust, Causative organism (Albugo sp.) Symptoms, predisposing factors, and disease cycle Control measures for white rust		
3	Viruses Structure and Characteristics of Viruses Viral Replication Cycle Viral Pathogenesis and Diseases	Reproduction in Rhodophyta: Asexual and Sexual, Alternation of Generations in Rhodophyta, Economic Importance of Rhodophyta	Morphological Features and Structures Basidiomycetes	Tikka Disease of Groundnut (Cercospora), Introduction to Tikka disease., Causative organism (Cercospora) Symptoms, predisposing factors, and disease cycle Control measures for Tikka disease		
4	Bacteria Morphology and Structure of	Structure and Life Cycle of Polysiphonia	Life Cycle of Agaricus : Morphology and	Damping of Disease (Pythium) ,	September	

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Department: Botany Lecture Plan: Year-2020-21 Class: T.Y. Bsc

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	Bacteria Bacterial Growth and Reproduction Role of Bacteria in Ecology and Industry	Detailed Examination of Polysiphonia: Morphology and Anatomy	Anatomy Germination and Hyphal Growth Spore Formation Formation of Basidiocarp (Mushroom)	Introduction to damping off disease , Causative organism (Pythium) ,Symptoms, predisposing factors, and disease cycle, Control measures for damping off disease	
5	Algae Overview of Algae: Definition and Characteristics Classification of Algae Importance of Algae in Aquatic Ecosystems and Biotechnology	Life Cycle of Polysiphonia: Asexual and Sexual Reproduction	Reproduction in Agaricus Basidiospore Release	Citrus Canker (Xanthomonas sp.) Introduction to citrus canker, Causative organism (Xanthomonas sp.), Symptoms, predisposing factors, and disease cycle, Control measures for citrus canker	
6	Fungi :Introduction to Fungi: Characteristics and Classification Structure and Function of Fungal Cells Ecological Roles and Economic Importance of Fungi	Structure and Life Cycle of Batrachospermum Anatomy and Morphology of Batrachospermum	Ecological Roles and Economic Importance of Agaricus	Leaf Curl (Leaf Curl Virus), Introduction to leaf curl disease., Causative agent (Leaf curl virus), Symptoms, predisposing factors, and disease cycle., Control measures for leaf curl disease	
7	Protozoa Characteristics and Diversity of Protozoa Protozoan Morphology and Locomotion Protozoan Parasites and Diseases	Reproductive Strategies and Life Cycle of Batrachospermum	Life Cycle of Puccinia Spore Formation and Dispersal Infection of Host Plant Development of urediniospores ( Ureial Satge)	Biological Control Methods of Plant Diseases., Overview of biological control methods, Introduction to biocontrol agents (e.g., beneficial microbes, predators). Application and efficacy of biological control in disease management	
8	Mycoplasma and Actinomycetes Introduction to Mycoplasma	Classification and General Characters of Xanthophyta Overview of Division	Life Cycle of Puccinia Production of teliospores ( Tilial	Study of Physical control methods of plant diseases.	October

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Department: Botany Lecture Plan: Year-2020-21 Class: T.Y. Bsc

	and Actinomycetes Unique Features and Adaptations of Mycoplasma Importance of Actinomycetes in Antibiotic Productio	Xanthophyta, Distribution and Habitat of Xanthophyta Species, Cell Structure and Pigments of Xanthophyta: Reserve Food and Thallus Range in Xanthophyta., Modes of Reproduction: Asexual and Sexual., Alternation of Generations in	Stage) on wheat, and		
9	Culturing Techniques Principles of Microbial Culturing Sterilization Methods: Physical and Chemical Culture Media: Types and Preparation	Xanthophyta, Economic Importance of Xanthophyta., Structure and Life Cycle of Vaucheria Anatomy and Morphology of Vaucheria	Life Cycle of Puccinia Production of acciospores on barberry.	Study of Chemical control methods of plant diseases.	
10	Staining Techniques Basics of Microbial Staining Differential Staining: Gram Staining and Acid-fast Staining., Specialized Staining Techniques for Microbial Identification	Reproduction in Vaucheria: Asexual and Sexual Life Cycle of Vaucheria	Sexual reproduction in Puccinia (spermatia ) Plant Diseases Caused by Puccinia and Control Measures	Integrated Disease Management (IDM) Concept of integrated disease management Integration of physical, chemical, and biological control methods	
11	Colony Characteristics Identification of Microbial Colonies Characteristics Used for Colony Differentiation Interpretation of Colony Morphology	Classification and General Characters of Bacillariophyta Introduction to Division Bacillariophyta Global Distribution of Bacillariophyta Species Cell Structure and Pigments in	Deuteromycetes (Deuteromycota) Introduction to Deuteromycetes Classification and General Characters Significance and Role in Nature	Epidemiology of Plant Diseases Overview of plant disease epidemiology Factors influencing disease spread and severity Disease forecasting and management strategies	

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Department: Botany Lecture Plan: Year-2020-21 Class: T.Y. Bsc

tment: Botany	Lecture	Fian. Tear-2020-21		Class: 1.1. bsc
	Bacillariophyta Reserve Food and Thallus Range in Bacillariophyta			
Pure Cultures Importance of Pure Cultures in Microbiology Techniques for Isolation and Maintenance of Pure Cultures Preservation Methods for Long-term Culture Storage	Reproductive Strategies: Asexual and Sexual Alternation of Generations in Bacillariophyta Economic Importance of Bacillariophyta	Life Cycle of Alternaria Morphological Features of Alternaria	Plant Disease Resistance and Host Plant Resistance Introduction to plant disease resistance Types of resistance mechanisms (e.g., innate, induced) Breeding strategies for developing resistant cultivars	November
Aseptic Techniques Principles and Practices of Aseptic Technique Sterile Handling of Microbial Cultures and Equipment Preventing Contamination in Microbiological Work	Structure and Life Cycle of Pinnularia Anatomy and Morphology of Pinnularia	Asexual Reproduction: Conidia Formation and Dispersal of Alternaria	Emerging Plant Diseases and Global Challenges Overview of emerging plant diseases Factors contributing to disease emergence and spread Challenges and strategies for global disease management	
Microbial Growth Kinetics Growth Curve of Microbial Populations ., Factors Influencing Microbial Growth Measurement and Control of Microbial Growth	Reproductive Patterns and Life Cycle of Pinnularia	Pathogenicity and Disease Development of Alternaria	Emerging Plant Diseases and Global Challenges Overview of emerging plant diseases	
Applied Microbiology Applications of Microbiology in Various Fields: Medicine, Agriculture, Industry, and Environmental Protection	Review of Previous Lectures and Concepts	Applied Mycology Industrial Applications of Fungi: Biotechnology and Bioremediation Medical Mycology: Fungal Infections and Treatments	Review and Discussion Recap of key concepts covered in the course Student presentations or discussions on related topics	
	Pure Cultures Importance of Pure Cultures in Microbiology Techniques for Isolation and Maintenance of Pure Cultures Preservation Methods for Long-term Culture Storage  Aseptic Techniques Principles and Practices of Aseptic Technique Sterile Handling of Microbial Cultures and Equipment Preventing Contamination in Microbiological Work  Microbial Growth Kinetics Growth Curve of Microbial Populations ., Factors Influencing Microbial Growth Measurement and Control of Microbial Growth Applied Microbiology Applications of Microbiology in Various Fields: Medicine, Agriculture, Industry, and	Pure Cultures Importance of Pure Cultures in Microbiology Techniques for Isolation and Maintenance of Pure Cultures Preservation Methods for Long-term Culture Storage  Aseptic Techniques Principles and Practices of Aseptic Technique Sterile Handling of Microbial Cultures and Equipment Preventing Contamination in Microbiological Work  Microbial Growth Kinetics Growth Curve of Microbial Populations , Factors Influencing Microbial Growth Measurement and Control of Microbial Growth Applied Microbiology Applications of Microbiology in Various Fields: Medicine, Agriculture, Industry, and  Bacillariophyta Reserve Food and Thallus Range in Bacillariophyta Resproductive Strategies: Asexual and Sexual Alternation of Generations in Bacillariophyta Economic Importance of Bacillariophyta  Structure and Life Cycle of Pinnularia Anatomy and Morphology of Pinnularia  Reproductive Patterns and Life Cycle of Pinnularia Reserve Food and Thallus Range in Bacillariophyta  Reserve Food and Thallus Range in Bacillariophyta  Reproductive Strategies: Asexual and Sexual Alternation of Generations in Bacillariophyta  Economic Importance of Bacillariophyta  Economic Importance of Pinnularia  Anatomy and Morphology of Pinnularia  Anatomy and Morphology of Pinnularia  Reproductive Strategies: Asexual and Sexual Alternation of Generations in Bacillariophyta  Economic Importance of Bacillariophyta  Economic Importance of Pinnularia  Anatomy and Morphology of Pinnularia  Anatomy and Morphology of Pinnularia  Reproductive Strategies: Asexual and Sexual  Alternation of Generations in Bacillariophyta  Economic Importance of Bacillariophyta  Economic Importance of Pinnularia  Anatomy and Morphology of Pinnularia	Pure Cultures Importance of Pure Cultures in Microbiology Techniques for Isolation and Maintenance of Pure Cultures Preservation Methods for Long-term Culture Storage  Aseptic Techniques Principles and Practices of Asternation in Microbiological Work  Microbial Growth Kinetics Growth Curve of Microbial Populations ., Factors Influencing Microbial Growth Measurement and Control of Microbial Growth Applied Microbiology Applications of Microbiology in Various Fields: Medicine, Agriculture, Industry, and Environmental Protection  Bacillariophyta Reproductive Strategies: Asexual And Sexual Alternation of Generations in Bacillariophyta  Structure and Life Cycle of Pinnularia Condition Techniques Principles and Practices of Asternation and Dispersal of Alternaria  Structure and Life Cycle of Pinnularia Anatomy and Morphology of Pinnularia Dispersal of Alternaria  Pathogenicity and Disease Development of Alternaria  Pathogenicity and Disease Development of Alternaria  Applied Mycology Industrial Applications of Fungi: Biotechnology and Bioremediation Medical Mycology: Fungal Infections and	Pure Cultures   Reserve Food and Thallus   Range in Bacillariophyta   Reserve Food and Thallus   Range in Bacillariophyta   Reproductive Strategies:   Asexual and Sexual   Alternation of Generations in Bacillariophyta   Alternation of Alternaria   Alternation of Alternaria   Asexual Reproduction:   Conidia Formation and Dispersal of Alternaria   Conidia Formatio

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Department: Botany

Lecture Plan: Year-2020-21

Name of the Lecturer: Mr. Nitin Shelake

(Semester-VI)

Subject / Paper: Paper -I

Class: T.Y. Bsc Units -I, II, III, IV

(Term: 01st January, 2021 to 31st May, 2021)

Lect ure		Key Points t	o be Covered:	T.L. welfing	Expected Months	Uni. allotted
No.	Unit I	Unit II	Unit III	Unit IV		Lecture
1	Introduction to Bryophytes Overview of Bryophytes Importance of Bryophytes in ecosystems Brief introduction to the G. M. Smith Classification system	Introduction to Pteridophytes Overview of Pteridophytes Importance of Pteridophytes in ecosystems Brief introduction to the G. M. Smith Classification system	Introduction to Applied Aspects of Bryophytes and Pteridophytes Overview of the course objectives and syllabus Importance of studying applied aspects of Bryophytes and Pteridophytes Introduction to key concepts; ecology, economic importance, indicators, evolution	Introduction to Gymnosperms Overview of Gymnosperms Historical background and significance Introduction to Chamberlain's Classification System	January	15 X 4 = 60 L
2	Introduction to Marchantia Taxonomy and classification of Marchantia with reasons Morphology of Marchantia	Introduction to Lepidophyta (Lycopodium) Taxonomy and classification of Lycopodium	Ecology of Bryophytes Habitat preferences and adaptations of Bryophytes	Life Cycle of Thuja Taxonomy and classification of Thuja		
3	Anatomy of Marchantia Asexual / Vegetative Reproduction in Marchantia	Morphology and Anatomy of Lycopodium	Role of Bryophytes in ecosystem processes Interactions with other organisms and environmental factors	Life Cycle of Thuja Morphology and anatomy of Thuja		
4	Life Cycle of Marchantia (Gametophyte) Introduction to the gametophyte generation Gametophyte structure and function Gametophyte development and growth	Gametophyte generation: structure and function Male and Female Gametophyte	Economic Importance of Bryophytes Commercial uses of Bryophytes: horticulture, medicine, cosmetics, etc. Contributions to ecosystem services and biodiversity conservation	Life Cycle of Thuja Reproductive structures and processes in Thuja		

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Class: T.Y. Bsc Lecture Plan: Year-2020-21 Department: Botany Life Cycle of Marchantia Life Cycle of Thuja February Sporophyte generation: Bryophytes as Indicators (Sporophyte) structure and function and Use of Bryophytes in Sporophyte generation: Introduction to the sporophyte environmental monitoring and structure, function, and development generation assessment development Sporophyte structure and Indicators of habitat quality, Gametophyte generation: pollution, and climate change function structure, function, and development Alternation of generations in Thuja Life Cycle of Thuja Introduction to Calamophyta Evolution of Sporophyte and Sporophyte development and 6 generation: growth (Equisetum) Gametophyte in Bryophytes Sprophyte Alternation of Generation in Taxonomy and classification Evolutionary history of Bryophytes structure. function. and Marchantia of Equisetum development Gametophyte generation: structure, function, and development Alternation of generations in Thuja Life Cycle of Gnetum Comparative morphology and Morphology And anatomy of Introduction to Pelia development of sporophyte and Taxonomy and classification of Equisetum Taxonomy and gametophyte generations Pelia with reasons, classification of Gnetum Significance of alternation of Morphology of Pelia generations in Bryophytes Anatomy of Pelia ia Life Cycle of Gnetum Reproduction in Equisetum, Economic Importance of Asexual / Vegetative Equisetum Gametophyte Morphology and anatomy Pteridophytes Reproduction in Pelia structure and function Male Commercial uses of Pteridophytes: of Gnetum Gametophyte, and ornamental plants, food, medicine, Development etc. Contributions to ecosystem services and restoration projects Diversity and Distribution of Indian Life Cycle of Gnetum Life Cycle of Pelia Equisetum Gametophyte March 9 generation: structure and Reproductive structures and Pteridophytes (Gametophyte)

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Department: Botany

Lecture Plan: Year-2020-21

	Introduction to the gametophyte generation Gametophyte structure and function Gametophyte development and growth	function Female Gametophyte and Development	Overview of Pteridophyte diversity in India	processes in Gnetum	
10	Life Cycle of Pelia (Sporophyte) Introduction to the sporophyte generation Sporophyte structure and function	Equisetum Sporophyte generation: structure and function and Development	Factors influencing distribution patterns  Conservation status and threats to Indian Pteridophytes	Life Cycle of Gnetum Sporophyte generation: structure, function, and development Gametophyte generation: structure, function, and development Alternation of generations in Gnetum	
11	Sporophyte development and growth & Alternation of Generation in Pelia	Introduction to Pterophyta  Taxonomy and classification of Pterophyta  Morphology of Adiantum and Marsilea	Types of Sori and Evolution of Sori in Pteridophytes Definition and significance of sori in Pteridophytes	Life Cycle of Ephedra Taxonomy and classification of Ephedra	
12	Introduction to Sphagnum Taxonomy and classification of Sphagnum with reasons Morphology of Sphagnum	Introduction to the life cycle of Adiantum Gametophyte generation: structure and function and development of Male and female gametophyte	Diversity of sorus types and their evolutionary adaptations Role of sori in reproductive strategies and dispersal	Life Cycle of Ephedra Morphology and anatomy of Ephedra	
3	Anatomy of Sphagnum ia Asexual / Vegetative Reproduction in Sphagnum	Sporophyte generation of Adiantum : structure and function and development	applications of Bryophytes and Pteridophytes in various fields such as forestry, agriculture, pharmaceuticals, and environmental management	Life Cycle of Ephedra Reproductive structures and processes in Ephedra	April
4	Life Cycle of Sphagnum	Introduction to the life cycle of	Summary of key takeaways and	Life Cycle of Ephedra	

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Class: T.Y. Bsc

	(Gametophyte) Introduction to the gametophyte generation Gametophyte structure and function Gametophyte development and growth	Marsilea Gametophyte generation: structure and function and development of Male and female gametophyte	conclusion of the course	Sporophyte generation: structure, function, and development Gametophyte generation: structure, function, and development Alternation of generations in Ephedra	
5	Life-Cycle of Sphagnum (Sporophyte) Introduction to the sporophyte generation Sporophyte structure and function Sporophyte development and growth	Sporophyte generation Marsilea : structure and function and development	Revision of the course	Economic Importance of Gymnosperms Timber and wood products Medicinal uses Ornamental and landscaping value Ecological significance and conservation efforts	

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Lecture Plan: Year-2022-23

Name of the Lecturer: Mr. Nitin Shelake (Semester-V) Subject / Paper: Paper -I Units - I, II, III, IV

Department: Botany

(Term: 13th June 2022 to 22nd October 2022)

Lectu re No.		Key Points to be Covered:				Uni. allotted Lecture
	Unit I	Unit II	Unit III	Unit IV		The contract
1	Introduction to Microbiology Definition and Scope of Microbiology Historical Overview of Microbiology Importance of Microbes in Various Fields	Introduction to Algae Definition and Overview of Algae Importance of Algae in Aquatic Ecosystems and Beyond General Characteristics of Algae	Introduction to Fungi Definition and Overview of Fungi Importance and Economic Significance General Characteristics of Fungi	Introduction to Plant Pathology Overview of plant pathology Importance of studying plant diseases Basic concepts and terminology	June	15 X 4= 60 L
2	Classification of Microbes Introduction to Different Types of Microbes: Viruses, Bacteria, Algae, Fungi, Protozoa, Mycoplasma, and Actinomycetes, Characteristics and Distinctive Features of Each Microbial Type	Rhodophyta: Classification and General Characters of Division Rhodophyta Distribution of Rhodophyta Species, Cell Structure and Pigments of Rhodophyta, Reserve Food and Thallus Range in Rhodophyta,	Basidiomycetes Introduction to Basidiomycetes Classification and General Characters	Study of Plant Diseases - White Rust (Albugo sp.) Introduction to white rust, Causative organism (Albugo sp.) Symptoms, predisposing factors, and disease cycle Control measures for white rust		
3	Viruses Structure and Characteristics of Viruses Viral Replication Cycle Viral Pathogenesis and Diseases	Reproduction in Rhodophyta: Asexual and Sexual, Alternation of Generations in Rhodophyta, Economic Importance of Rhodophyta	Morphological Features and Structures Basidiomycetes	Tikka Disease of Groundnut (Cercospora)., Introduction to Tikka disease., Causative organism (Cercospora) Symptoms, predisposing factors, and disease cycle Control measures for Tikka disease	July	
4	Bacteria Morphology and Structure of	Structure and Life Cycle of Polysiphonia	Life Cycle of Agaricus : Morphology and	Damping Off Disease (Pythium) ,	Datany	

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	Bacteria Bacterial Growth and Reproduction Role of Bacteria in Ecology and Industry	Detailed Examination of Polysiphonia: Morphology and Anatomy	Anatomy Germination and Hyphal Growth Spore Formation Formation of Basidiocarp (Mushroom)	Introduction to damping off disease , Causative organism (Pythium) ,Symptoms, predisposing factors, and disease cycle, Control measures for damping off disease	
5	Algae Overview of Algae: Definition and Characteristics Classification of Algae Importance of Algae in Aquatic Ecosystems and Biotechnology	Life Cycle of Polysiphonia: Asexual and Sexual Reproduction	Reproduction in Agaricus Basidiospore Release	Citrus Canker (Xanthomonas sp.) Introduction to citrus canker, Causative organism (Xanthomonas sp.), Symptoms, predisposing factors, and disease cycle, Control measures for citrus canker	
6	Fungi :Introduction to Fungi: Characteristics and Classification Structure and Function of Fungal Cells Ecological Roles and Economic Importance of Fungi	Structure and Life Cycle of Batrachospermum Anatomy and Morphology of Batrachospermum	Ecological Roles and Economic Importance of Agaricus	Leaf Curl (Leaf Curl Virus), Introduction to leaf curl disease., Causative agent (Leaf curl virus), Symptoms, predisposing factors, and disease cycle., Control measures for leaf curl disease	
7	Protozoa Characteristics and Diversity of Protozoa Protozoan Morphology and Locomotion Protozoan Parasites and Diseases	Reproductive Strategies and Life Cycle of Batrachospermum	Life Cycle of Puccinia Spore Formation and Dispersal Infection of Host Plant Development of urediniospores ( Ureial Satge)	Biological Control Methods of Plant Diseases., Overview of biological control methods, Introduction to biocontrol agents (e.g., beneficial microbes, predators). Application and efficacy of biological control in disease management	August
8	Mycoplasma and Actinomycetes Introduction to Mycoplasma and Actinomycetes	Classification and General Characters of Xanthophyta Overview of Division Xanthophyta, Distribution	Life Cycle of Puccinia Production of teliospores ( Tilial	Study of Physical control methods of plant diseases.	

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Department: Botany Lecture Plan: Year-2022-23 Class: T.Y. Bsc

	Unique Features and Adaptations of Mycoplasma Importance of Actinomycetes in Antibiotic Productio	and Habitat of Xanthophyta Species, Cell Structure and Pigments of Xanthophyta: Reserve Food and Thallus Range in Xanthophyta., Modes of Reproduction: Asexual and Sexual., Alternation of Generations in	Stage) on wheat, and		
9	Culturing Techniques Principles of Microbial Culturing Sterilization Methods: Physical and Chemical Culture Media: Types and Preparation	Xanthophyta, Economic Importance of Xanthophyta., Structure and Life Cycle of Vaucheria Anatomy and Morphology of Vaucheria	Life Cycle of Puccinia Production of aeciospores on barberry.	Study of Chemical control methods of plant diseases.	
10	Staining Techniques Basics of Microbial Staining Differential Staining: Gram Staining and Acid-fast Staining., Specialized Staining Techniques for Microbial Identification	Reproduction in Vaucheria: Asexual and Sexual Life Cycle of Vaucheria	Sexual reproduction in Puccinia (spermatia ) Plant Diseases Caused by Puccinia and Control Measures	Integrated Disease Management (IDM) Concept of integrated disease management Integration of physical, chemical, and biological control methods	
11	Colony Characteristics Identification of Microbial Colonies Characteristics Used for Colony Differentiation Interpretation of Colony Morphology	Classification and General Characters of Bacillariophyta Introduction to Division Bacillariophyta Global Distribution of Bacillariophyta Species Cell Structure and Pigments in Bacillariophyta	Deuteromycetes (Deuteromycota) Introduction to Deuteromycetes Classification and General Characters Significance and Role in Nature	Epidemiology of Plant Diseases Overview of plant disease epidemiology Factors influencing disease spread and severity Disease forecasting and management strategies	September

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		Reserve Food and Thallus Range in Bacillariophyta			
12	Pure Cultures Importance of Pure Cultures in Microbiology Techniques for Isolation and Maintenance of Pure Cultures Preservation Methods for Long-term Culture Storage	Reproductive Strategies: Asexual and Sexual Alternation of Generations in Bacillariophyta Economic Importance of Bacillariophyta	Life Cycle of Alternaria Morphological Features of Alternaria	Plant Disease Resistance and Host Plant Resistance Introduction to plant disease resistance Types of resistance mechanisms (e.g., innate, induced) Breeding strategies for developing resistant cultivars	
13	Aseptic Techniques Principles and Practices of Aseptic Technique Sterile Handling of Microbial Cultures and Equipment Preventing Contamination in Microbiological Work	Structure and Life Cycle of Pinnularia Anatomy and Morphology of Pinnularia	Asexual Reproduction: Conidia Formation and Dispersal of Alternaria	Emerging Plant Diseases and Global Challenges Overview of emerging plant diseases Factors contributing to disease emergence and spread Challenges and strategies for global disease management	
14	Microbial Growth Kinetics Growth Curve of Microbial Populations ., Factors Influencing Microbial Growth Measurement and Control of Microbial Growth	Reproductive Patterns and Life Cycle of Pinnularia	Pathogenicity and Disease Development of Alternaria	Emerging Plant Diseases and Global Challenges Overview of emerging plant diseases	
15	Applied Microbiology Applications of Microbiology in Various Fields: Medicine, Agriculture, Industry, and Environmental Protection	Review of Previous Lectures and Concepts	Applied Mycology Industrial Applications of Fungi: Biotechnology and Bioremediation Medical Mycology: Fungal Infections and Treatments	Review and Discussion Recap of key concepts covered in the course Student presentations or discussions on related topics	October

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Ismail Yusuf College of Arts, Science & Commerce,

Lecture Plan: Year-2022-23

(Semester-VI) Subject /

Subject / Paper: Paper -I

Class: T.Y. Bsc Units - I, II, III , IV

(Term: 7th November 2022 to 1st May 2023)

Department: Botany

Name of the Lecturer: Mr. Nitin Shelake

Lect ure	Harris Shires	Key Points to be Covered:		Expected Months	Uni. allotted	
No.	Unit I	Unit II	Unit III	Unit IV		Lecture
1	Introduction to Bryophytes Overview of Bryophytes Importance of Bryophytes in ecosystems Brief introduction to the G. M. Smith Classification system	Introduction to Pteridophytes Overview of Pteridophytes Importance of Pteridophytes in ecosystems Brief introduction to the G. M. Smith Classification system	Introduction to Applied Aspects of Bryophytes and Pteridophytes Overview of the course objectives and syllabus Importance of studying applied aspects of Bryophytes and Pteridophytes Introduction to key concepts: ecology, economic importance, indicators, evolution	Introduction to Gymnosperms Overview of Gymnosperms Historical background and significance Introduction to Chamberlain's Classification System	Novembe r	15 X 4 = 60 L
2	Introduction to Marchantia Taxonomy and classification of Marchantia with reasons Morphology of Marchantia	Introduction to Lepidophyta (Lycopodium) Taxonomy and classification of Lycopodium	Ecology of Bryophytes Habitat preferences and adaptations of Bryophytes	Life Cycle of Thuja Taxonomy and classification of Thuja		
3	Anatomy of Marchantia Asexual / Vegetative Reproduction in Marchantia	Morphology and Anatomy of Lycopodium	Role of Bryophytes in ecosystem processes Interactions with other organisms and environmental factors	Life Cycle of Thuja Morphology and anatomy of Thuja		
4	Life Cycle of Marchantia (Gametophyte) Introduction to the gametophyte generation Gametophyte structure and function Gametophyte development and growth	Gametophyte generation: structure and function Male and Female Gametophyte	Economic Importance of Bryophytes Commercial uses of Bryophytes: horticulture, medicine, cosmetics, etc. Contributions to ecosystem services and biodiversity conservation	Life Cycle of Thuja Reproductive structures and processes in Thuja  Head Department of	December	

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Lecture Plan: Year-2022-23

5	Life Cycle of Marchantia (Sporophyte) Introduction to the sporophyte generation Sporophyte structure and function	Sporophyte generation: structure and function and development	Bryophytes as Indicators Use of Bryophytes in environmental monitoring and assessment Indicators of habitat quality, pollution, and climate change	Life Cycle of Thuja Sporophyte generation: structure, function, and development Gametophyte generation: structure, function, and development Alternation of generations in Thuja		
6	Sporophyte development and growth Alternation of Generation in Marchantia	Introduction to Calamophyta (Equisetum) Taxonomy and classification of Equisetum	Evolution of Sporophyte and Gametophyte in Bryophytes Evolutionary history of Bryophytes	Life Cycle of Thuja Sprophyte generation: structure, function, and development Gametophyte generation: structure, function, and development Alternation of generations in Thuja		
7	Introduction to Pelia Taxonomy and classification of Pelia with reasons, Morphology of Pelia	Morphology And anatomy of Equisetum	Comparative morphology and development of sporophyte and gametophyte generations Significance of alternation of generations in Bryophytes	Life Cycle of Gnetum Taxonomy and classification of Gnetum	January	
8	Anatomy of <i>Pelia</i> ia Asexual / Vegetative Reproduction in <i>Pelia</i>	Reproduction in Equisetum, Equisetum Gametophyte structure and function Male Gametophyte, and Development	Economic Importance of Pteridophytes Commercial uses of Pteridophytes: ornamental plants, food, medicine, etc. Contributions to ecosystem services and restoration projects	Life Cycle of Gnetum Morphology and anatomy of Gnetum		
,	Life Cycle of Pelia (Gametophyte)	Equisetum Gametophyte generation: structure and	Diversity and Distribution of Indian Pteridophytes	Life Cycle of Gnetum Reproductive structures and		

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	Introduction to the gametophyte generation Gametophyte structure and function Gametophyte development and growth	function Female Gametophyte and Development	Overview of Pteridophyte diversity in India	processes in Gnetum	
10	Life Cycle of Pelia (Sporophyte) Introduction to the sporophyte generation Sporophyte structure and function	Equisetum Sporophyte generation: structure and function and Development	Factors influencing distribution patterns  Conservation status and threats to Indian Pteridophytes	Life Cycle of Gnetum Sporophyte generation: structure, function, and development Gametophyte generation: structure, function, and development Alternation of generations in Gnetum	
11	Sporophyte development and growth & Alternation of Generation in <i>Pelia</i>	Introduction to Pterophyta  Taxonomy and classification of Pterophyta  Morphology of Adiantum and Marsilea	Types of Sori and Evolution of Sori in Pteridophytes Definition and significance of sori in Pteridophytes	Life Cycle of Ephedra Taxonomy and classification of Ephedra	February
12	Introduction to Sphagnum Taxonomy and classification of Sphagnum with reasons Morphology of Sphagnum	Introduction to the life cycle of Adiantum Gametophyte generation: structure and function and development of Male and female gametophyte	Diversity of sorus types and their evolutionary adaptations Role of sori in reproductive strategies and dispersal	Life Cycle of Ephedra Morphology and anatomy of Ephedra	
13	Anatomy of Sphagnum ia Asexual / Vegetative Reproduction in Sphagnum	Sporophyte generation of Adiantum : structure and function and development	applications of Bryophytes and Pteridophytes in various fields such as forestry, agriculture, pharmaceuticals, and environmental management	Life Cycle of Ephedra Reproductive structures and processes in Ephedra	
14	Life Cycle of Sphagnum	Introduction to the life cycle of	Summary of key takeaways and	Life Cycle of Ephedra Head Department of	h

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Lecture Plan: Year-2022-23

	(Gametophyte) Introduction to the gametophyte generation Gametophyte structure and function Gametophyte development and growth	Marsilea Gametophyte generation: structure and function and development of Male and female gametophyte	conclusion of the course	Sporophyte generation: structure, function, and development Gametophyte generation: structure, function, and development Alternation of generations in Ephedra	
15	Life Cycle of Sphagnum (Sporophyte) Introduction to the sporophyte generation Sporophyte structure and function Sporophyte development and growth	Sporophyte generation Marsilea : structure and function and development	Revision of the course	Economic Importance of Gymnosperms Timber and wood products Medicinal uses Ornamental and landscaping value Ecological significance and conservation efforts	March

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