

SRI Y.N.COLLEGE (AUTONOMOUS)

Affiliated to Adikavi Nannayya University

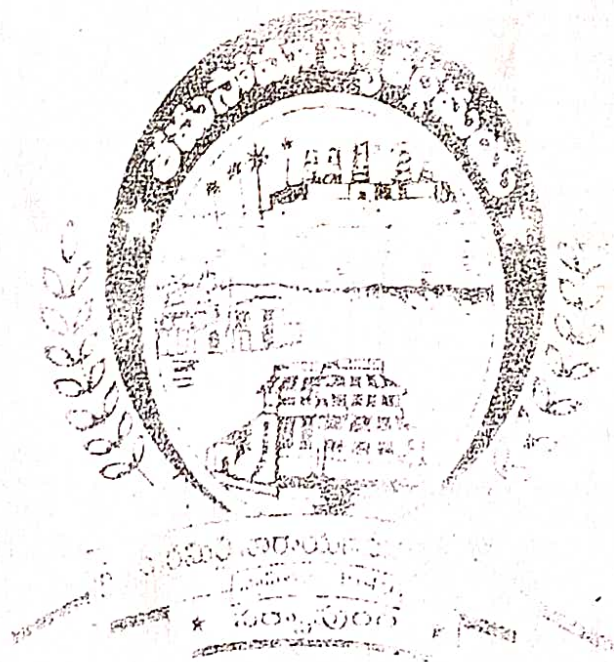
Thrice accredited by NAAC at 'A' Grade

Recognized by UGC as "College with Potential for Excellence"

NARSAPUR - 534 275

(AS PER CBCS AND SEMESTER SYSTEM)
AP STATE COUNCIL OF HIGHER EDUCATION
CBCS - PATTERN

2019-2020



BOTANY SYLLABUS

Andhra Pradesh State Council of Higher Education
Structure of B.Sc Botany under CBCS

<i>Year</i>	<i>Semester</i>	<i>Paper</i>	<i>Title</i>	<i>Hours</i>	<i>Marks</i>	<i>Credits</i>
I	I	I	Microbial Diversity , Algae and Fungi	4	100	03
			Practical –I	2	50	02
	II	II	Diversity Of Archaeogoniates & Anatomy	4	100	03
			Practical –II	2	50	02
II	III	III	Plant taxonomy & Embryology	4	100	03
			Practical –III	2	50	02
	IV	IV	Plant physiology & Metabolism	4	100	03
			Practical –IV	2	50	02
III	V	V	Cell Biology, Genetics & Plant breeding	3	100	03
			Practical –V	2	50	02
		VI	Plant Ecology & Phytogeography	3	100	03
			Practical –VI	2	50	02
	Any one paper from (A), (B) and (C) can be selected	VII (A)	Elective	3	100	03
			Lab	2	50	02
		VII (B)*	Elective			
			Lab			
		VII (C)*	Elective			
			Lab			
	VI **Any one cluster (Set of Three Papers) from VIII-A or VIII-B can be selected	** VIII-A	Cluster Elective-A	3	100	03
			VIII-A-1	3	100	03
			VIII-A-2	3	100	03
			VIII-A-3	2	50	02
Or			2	50	02	
			2	50	02	
			2	50	02	
** VIII-B	Cluster Elective-B					
	VIII-B-1					
	VIII-B-2					
		VIII-B-3				

SRI Y.N. COLLEGE (AUTONOMOUS) NARASAPUR

Affiliated to Adikavi Nannayya University

Thrice accredited by NAAC at 'A' Grade

Recognized by UGC as "College with Potential for Excellence"

I B.Sc ;I Semester (2019-2022)

Botany Paper-I

(Microbial Diversity, Algae and Fungi)

UNIT- I: MICROBIAL WORLD (Origin and Evolution of Life, Microbial diversity)

1. Discovery of microorganisms, origin of life, spontaneous, biogenesis, Pasteur experiments, germ theory of disease.
2. Classification of microorganisms –R.H. Whittaker's five kingdom, Carl concep Woese's-Domain system.
3. Brief account of special groups of bacteria- Archaeobacteria, Mycoplasma, Chlamydia, Actinomycetes, Rickettsias and Cyanobacteria.

UNIT- II: VIRUSES

1. Viruses- Discovery, general account, structure& replication of –T4 Phage (Lytic, Lysogenic) and TMV, Viroids, Prions.
2. Plant diseasescaused by viruses–Symptoms, transmission and control measures (Brief account only).
3. Study of Tobacco Mosaic, Bhendi Vein clearing and Papaya leaf curl diseases.

UNIT III: BACTERIA

1. Bacteria: Discovery, General characteristics, cell structure and nutrition.
2. Reproduction- Asexual and bacterial recombination (Conjugation, Transformation, Transduction).
3. Economic importance of Bacteria.

UNIT –IV Algae

1. General account - thallus organization and reproduction in Algae.
2. Fritsch classification of Algae (up to classes only) and economic importance.
3. Structure, reproduction and life history of *Oedogonium*, *Ectocarpus* and *Polysiphonia*.

UNIT V: FUNGI

1. General characteristics and outline classification (Ainsworth).
2. Structure, reproduction and life history of *Rhizopus* (Zygomycota), *Penicillium* (Ascomycota), and *Puccinia* (Basidiomycota).
3. Lichens-Structure and reproduction; ecological and economic importance.

Suggested activity: Seminar, Quiz, debate, collection of diseased plant parts – studying symptoms and identification of pathogen, collection and study of fresh and marine Algae available in local area.

Books for Reference

1. Oladele Ogunseitan (2008) Microbial Diversity: Form and Function in Prokaryotes Wiley- Blackwell.
2. Pelczar, M.J. (2001) Microbiology, 5th edition, Tata Mc Graw-Hill Co, New Delhi.
3. Presscott, L. Harley, J. and Klein, D. (2005) Microbiology, 6th edition, Tata Mc Graw- Hill Co. New Delhi.
4. Fritsch F.E. (1935 The Structure & Reproduction of Algae 1945): Cambridge University Press Cambridge, U.K. Vol. I, Vol. II.
5. Smith, G.M (1955) :Cryptogamic Botany(Vol. I Algae, Fungi, & Lichens) McGraw-Hill Book Co., New York .
6. Ian Morris (1967): An Introduction to the Algae, Hutchinson, London.
7. Alexopoulos,C.J., Mims, C.W. & Blackwell, M. (1996): Introductory Mycology John Wiley& Sons., Inc., N.Y., Chicester, Berisbane, Toronto, Singapore.
8. Webster, J (1999) : Introduction to Fungi(2nd edition) Cambridge University Press.

**Student Activities like Seminars, Assignments, Fieldwork, Study Projects, Models etc. are

Part of Curriculum for all units in all papers.

Blue Print (Guidelines to the Paper Setter)

Unit	Essay Questions	Short Note Questions
Unit -I	2	1
Unit - II	2	2
Unit -III	2	1
Unit -IV	2	2
Unit -V	2	2
Total	10	8

APPROVED

1. T. Royal

2. B. S. S. S.

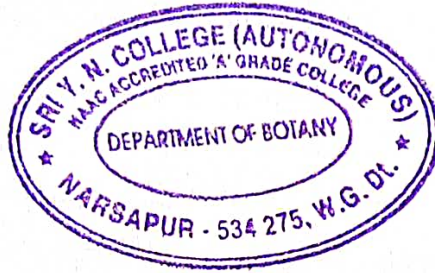
3.

4. A. J. S.

5. N. N. C.

6.

7. G. R. S.



T. Royal 1/7/19
CHAIRMAN

BOARD OF STUDIES
DEPARTMENT OF BOTANY
SRI Y. N. COLLEGE (AUTONOMOUS)
(NAAC ACCREDITED 'A' GRADE COLLEGE)
NARSAPUR - 534 275

SECTION-B

14. Write an essay on economic importance of bacteria.

బ్యాక్టీరియా యొక్క ఆర్థిక ప్రాముఖ్యత గూర్చి ఒక వ్యాసము వ్రాయుము.

15. Describe the thallus organisation in Algae.

శైవలాలలోని థాలస్ సంవిధానాన్ని వర్ణించండి.

16. Explain the life history of Ectocarpus

ఎక్టోకార్పస్ జీవిత చరిత్రను వివరింపుము.

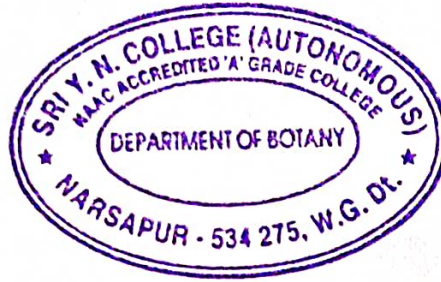
17. Describe the structure and reproduction of Penicillium.

పెన్సిలియం నిర్మాణము మరియు ప్రత్యుత్పత్తిని వర్ణింపుము.

18. Describe the external characters and economic importance of Lichens.

లైకెన్స్ బాహ్య లక్షణములు, మరియు ఆర్థిక ప్రాముఖ్యతను వర్ణింపుము.

APPROVED



1. T. R. R.

2. B. R.

3.

4. A. J.

5. N. R. G.

6.

7. G. R.

CHAIRMAN 6/1/19
BOARD OF STUDIES
DEPARTMENT OF BOTANY
SRI Y. N. COLLEGE (AUTONOMOUS)
(NAAC ACCREDITED 'A' GRADE COLLEGE)
NARSAPUR - 534 275

I B.Sc-SEMESTER-I; BOTANY PRACTICAL SYLLABUS
Paper-I: Microbial Diversity, Algae and Fungi

1. Knowledge of Equipment used in Microbiology: Spirit lamp, Inoculation loop, Hot-air oven, Autoclave/Pressure cooker, laminar air flow chamber and Incubator.
2. Preparation of liquid and solid media for culturing of microbes (Demonstration).
3. Study of viruses and bacteria using electron photo micrographs (TMV, Bacteriophage, HIV, Cocci, Bacillus, Spirillum bacteria).
4. Gram staining technique.
5. Study of Plant disease symptoms caused by Bacteria (Citrus canker, leaf blight of rice, Angular leaf spot of Cotton) and viruses (TMV, Bhendi vein clearing and Leaf curl of Papaya), Fungi (Late blight of potato, Red rot of Sugarcane and Paddy blast).
6. Study of vegetative and reproductive structures of the following :
 - a) Cyanobacteria: *Nostoc and Scytonema*.
 - b) Algae: *Oedogonium, Ectocarpus, Polysiphonia*,
 - c) Fungi: *Rhizopus, Penicillium and Puccinia*.
7. Study of plant material infected by Fungi (Rot of tomatoes, blue and green moulds of Citrus fruits and wheat rust (Section cutting of diseased parts of Wheat and Barberry - identification of different spores).
8. Lichens: Morphology and anatomy of different thalli.
9. Field Visit.

APPROVED

1. T. R. ...

2. P. S. ...

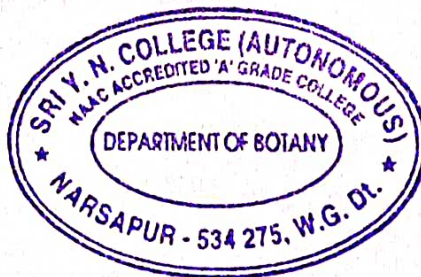
3.

4. A. J. ...

5. N. M. ...

6.

7. G. R. ...



T. R. ... 12/19
CHAIRMAN
BOARD OF STUDIES
DEPARTMENT OF BOTANY
SRI Y.N. COLLEGE (AUTONOMOUS)
(NAAC ACCREDITED 'A' GRADE COLLEGE)
NARSAPUR - 534 275

B.Sc - SEMESTER –I
BOTANY PRACTICAL PAPER –I
Paper-I : Microbial Diversity, Algae and Fungi

Time: 3hrs.

Max. Marks: 50

1. Identify giving reasons two of the given Algal mixture". Leave A your preparation for evaluation. Draw labeled diagrams. (Slide--1mark, Diagrams--1mark, Identification--1mark)
3x 2 = 6 Marks
10 Marks
2. Make suitable stained preparation of the material "B" to bring out the details of internal structure-- identify giving reasons. Draw labeled diagrams and leave your preparations for evaluation. (Slide-4 marks, diagrams-3 marks, Identification-3marks)
9 Marks
3. Perform Gram staining of the given Bacterial culture
(5X3)= 15 Marks
4. Write critical notes and Identify D, E, F, G and H
10 Marks
5. Record(submission is compulsory)

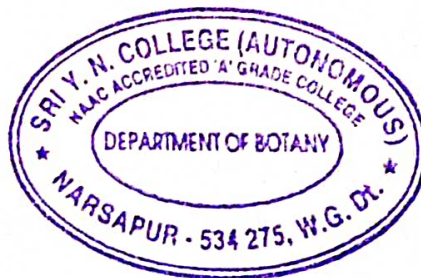
Total: 50 Marks

Key:

- A. Algal material
- B. Fungi material
- C. Bacterial culture
- D. One of the instruments of Micro biology laboratory.
- E. Whole specimen or a permanent slide of Algae.
- F. Whole specimen or a permanent slide of Fungi.
- G. Whole specimen or a permanent slide of Plant disease studied.
- H. Whole specimen or a permanent slide of Lichens.

APPROVED

1. T. Roy
2. P. S. S. S.
- 3.
4. A. J. S.
5. K. S. S.
- 6.
7. G. Roy



T. Roy 6/12/19
CHAIRMAN
BOARD OF STUDIES
DEPARTMENT OF BOTANY
SRI Y.N. COLLEGE (AUTONOMOUS)
(NAAC ACCREDITED 'A' GRADE COLLEGE)
NARSAPUR - 534 275

SRI Y.N. COLLEGE (AUTONOMOUS) NARASAPUR

Affiliated to Adikavi Nannayya University

Thrice accredited by NAAC at 'A' Grade

Recognized by UGC as "College with Potential for Excellence"

I B.Sc ;II Semester (2019-2022)

Botany Paper-II

(Diversity of Archegoniates & Plant Anatomy)

UNIT –I: BRYOPHYTES

1. Bryophytes: General characters, Classification (up to classes)
2. Structure, reproduction and Life history of *Marchantia*, and *Funaria*.
3. Evolution of Sporophyte in Bryophytes.

UNIT - II: PTERIDOPHYTES

1. Pteridophytes: General characters, classification (up to Classes)
2. Structure, reproduction and life history of *Lycopodium*, and *Marsilea*.
3. Heterospory and seed habit.
4. Evolution of stele in Pteridophytes.

UNIT –III: GYMNOSPERMS

1. Gymnosperms: General characters, classification (up to classes)
2. Morphology, anatomy, reproduction and life history of *Pinus* and *Gnetum*
3. Economic importance with reference to wood, essential oils and drugs

UNIT –I V: TISSUES AND TISSUE SYSTEMS

1. Meristems - Root and Shoot apical meristems and their histological organization.
2. Tissues –Meristematic and permanent tissues (simple, complex, secretory)
3. Tissue systems–Epidermal, ground and vascular.

UNIT –V. SECONDARY GROWTH

1. Anomalous secondary growth in *Bignonia*, *Boerhaavia* and *Dracaena*
2. Study of local timbers of economic importance-Teak, Rosewood, Red sanders and Arjun (Tella maddi).

Suggested activity: Collection of *Marsilea* sporocarp, *Pinus* needles, male and female cones, study of *Pinus* pollen grains, collection of locally available economically useful timbers.

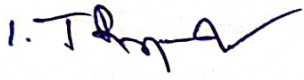




Books for Reference:

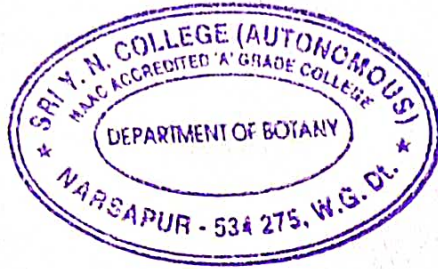
1. Cavers, Frank (): The inter-relationships of the Bryophytes
New Phytologist, Indian Reprint.
2. Smith, G.M. (1955): Cryptogamic Botany Vol. II. (2nd Edition)
(Bryophytes & Pteridophytes) Tata McGraw Hill Publishing Co., New Delhi.
3. Parihar, N.S. (): An Introduction to embryophyta –Vol.II. Bryophyta
Central Book Depot, Allahabad.
4. Watson, E.V. (1968): British Mosses & Liverworts Cambridge University Press, U.K
5. Eames, A.J. (1936) : Morphology of Vascular Plants (Lower Groups)
McGraw Hill, N.Y.
6. Parihar, N.S. (19) : An Introduction to Embryophyta Vol.II Pteridophyta
Central Book Depot., Allahabad.
7. Smith, G.M. (1955) : Cryptogamic Botany Vol.II (2nd Edn.,) (Bryophytes &
Pteridophytes) Tata McGraw Hill Publishing Co., New Delhi.
8. Sporne, K.R. (1970) : The Morphology of Pteridophytes (The Structure of
Ferns and Allied Plants) Hutchinson University Library, London
9. Bierhorst, D.W. (1971) : Morphology of Vascular Plants, The MacMillan Co., N.Y.
& Collier- MacMillan Ltd., London.
10. Coulter, J.M.& C.J. Chamberlain (1964) : Morphology of Gymnosperms
Central Book Depot, Allahabad.

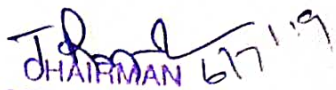
Blue Print (Guidelines to the Paper Setter)

Unit	Essay Questions	Short Note Questions
Unit –I	2	2
Unit – II	2	2
Unit –III	2	1
Unit –IV	2	2
Unit –V	2	1
Total	10	8

APPROVED

1. 
2. 
- 3.
4. 
5. 
- 6.
7. 




CHAIRMAN 6/7/19
**BOARD OF STUDIES
DEPARTMENT OF BOTANY
SRI Y.N. COLLEGE (AUTONOMOUS)
(HAAC ACCREDITED 'A' GRADE COLLEGE)
NARSAPUR - 534 275**



SRI Y.N. COLLEGE (AUTONOMOUS) NARASAPUR
 Affiliated to Adikavi Nannayana University
 Thrice accredited by NAAC at 'A' Grade
 Recognized by UGC as "College with Potential for Excellence"
 I B.Sc ;II Semester (2019-2022)

Botany Paper-II

(Diversity of Archaeogoniatas & Plant Anatomy)

Date: _____ Max.Marks:75
 Time: _____ Duration: 3 Hrs

PART-I

NOTE: Draw neat labelled diagrams wherever necessary for questions in Part-I & II
 విభాగము I మరియు II లోని ప్రశ్నలకు అవసరమైనచోట భాగములు గుర్తించిన పటములు వేయుము

Answer any FIVE of the following. Each one carries 5 Marks. 5 x 5=25M

ఈ క్రింది వాటిలో ఏవైనా ఐదింటికి నమాధానము వ్రాయుము. ప్రతి దానికి ఐదు మార్కులు.

- | | |
|------------------------------------|--|
| 1. Classification of Bryophytes | బ్రయోఫైట్ల వర్గీకరణ |
| 2. Funaria Archegonial Branch L.S | ఫ్యూనేరియా స్త్రీ బీజాశయ శాఖ నిలుపుకోత |
| 3. Lycopodium cone L.S | లైకోపోడియం శంకు నిలుపుకోత |
| 4. Marsilea Sporocarp | మార్సిలియా స్పోరోకార్ప్ |
| 5. Angiosperm Characters in Gnetum | నీటమ్లో ఆవృత బీజ లక్షణాలు |
| 6. Phloem | పోషక కణజాలం |
| 7. Types of Stomata | పత్రరంధ్ర రకాలు |
| 8. Rose wood | రోజ్‌వుడ్ |

PART-II

Answer any FIVE questions, choosing atleast TWO from each section. 5 x 10= 50M

ఏవేని ఐదు ప్రశ్నలకు నమాధానము వ్రాయుము, ప్రతీ విభాగము నుండి కనీసం రెండు వ్రాయుము.

SECTION-A

9. Describe the external and internal structure of the thallus in Marchantia.
 మార్కాంషియాలోని థాలస్యొక్క బాహ్య మరియు అంతర నిర్మాణములను గురించి వివరింపుము.
10. Explain the theories regarding the evolution of sporophytes in Bryophytes.
 బ్రయోఫైట్లలోని సిద్ధబీజద పరిణామాన్ని వివరించే సిద్ధాంతాలను వివరించండి.
11. Describe the internal structure of the Marsilea Rhizome.
 మార్సిలియా కొమ్ము అంతర్నిర్మాణాన్ని వర్ణింపుము
12. Explain the stelar evolution in Pteridophyta.
 టెరిడోఫైటాలోని ప్రసరణ స్తంభ పరిణామమును తెల్పుండి.
13. Describe the Internal structure of Pinus needle and add a note on its xerophytic characters.
 పైన్స్ నీడిల్ యొక్క అంతర్నిర్మాణాన్ని వర్ణింపుము. దానిలోని ఎడారి లక్షణములను తెలుపుము.

SECTION-B

14. Give an illustrated account of male and female strobili in Gnetum.

నీటమ్లో పురుషశంకువు మరియు స్త్రీ శంకువుల నిర్మాణాన్ని పటముల సహాయంతో వివరించండి.

15. Describe various theories regarding the organisation of shoot apex.

కాండాగ్ర నిర్మాణమును వివరించే వివిధ సిద్ధాంతములను వర్ణించుము.

16. Give an account of Simple Tissues.

సరళ కణజాలాలను గురించి వ్రాయండి.

17. Describe the process of anomalous secondary growth in Boerhavia stem.

బోయర్హావియ కాండములో అసంగత ద్వితీయ వృద్ధిని వివరింపుము.

18. Describe the characters of Tectona grandis (Teak) wood with suitable diagrams and mention its uses.

పటసహాయంతో టెక్టోనా గ్రాండిస్ (టేకు) కలప లక్షణాలు వర్ణింపుము, ఆ కలప యొక్క ఉపయోగాలను తెల్పుండి.

APPROVED

1. T R...

2. B. S...

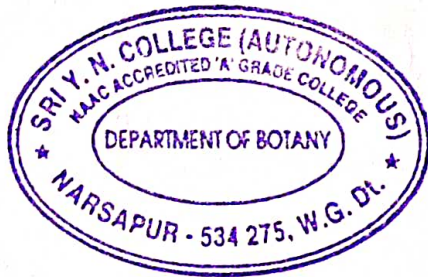
3.

4. A. J...

5. N. S...

6.

7. G. R...



CHAIRMAN 6/7/19
BOARD OF STUDIES
DEPARTMENT OF BOTANY
SRI Y.N. COLLEGE (AUTONOMOUS)
(NAAC ACCREDITED 'A' GRADE COLLEGE)
NARSAPUR - 534 275

I B.Sc SEMESTER -II
BOTANY PRACTICAL SYLLABUS
Paper-II: Diversity of Archaeogoniates & Plant Anatomy

1. Morphology (vegetative and reproductive structures) , anatomy of the following :
Marchantia, Funaria, Lycopodium and *Pinus*.
2. Anatomy:
 - a) Demonstration of double staining technique.
 - b) Tissue organization in root and shoot apices using permanent slides
 - c) Preparation of double staining slides
 - d) Anomalous secondary structure of *Bignonia, Boerhavia* and *Dracaena*.
 - e) Anatomical study of wood in T.S., T.L.S. and R.L.S.
3. Field visits to local timber depots.

I B.Sc., SEMESTER –II: BOTANY PRACTICAL MODEL PAPER
IB :Diversity of Archaeogoniates & plant Anatomy

- | | | |
|---|---------------|--|
| 1. Section cutting of material -A
(Slide 3 marks, diagrams-3 marks, Identification-3 marks) | 9 Marks | |
| 2. Section cutting of material -B
(Slide 3 marks, diagrams-3 marks, Identification-3 marks) | 9 Marks | |
| 3. Section cutting of material -C
(Slide 4 marks, diagrams-3 marks, Identification-3 marks) | 10 Marks | |
| 4. Identification of spotters - D, E, and F | 3x4 =12 marks | |
| 5. Record (submission compulsory) | 10 marks | |

Total : 50 Marks

Key:

- A. Bryophyta/ Pteridophyta material
 - B. Gymnosperm material.
 - C. Anatomy material.
 - D. Whole specimen or permanent slide of Bryophyta/ Pteridophyta
 - E. Whole specimen or permanent slide of Gymnosperm.
 - F. Whole specimen or permanent slide of wood.
-

APPROVED

1. T. R. [Signature]

2. B. [Signature]

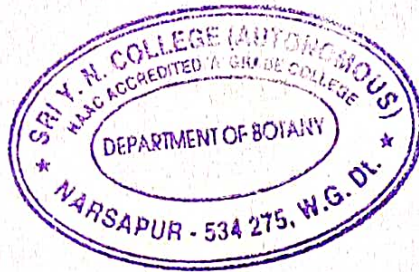
3.

4. A. J. [Signature]

5. K. N. C. [Signature]

6.

7. G. R. [Signature]



T. R. [Signature] 6/7/19
CHAIRMAN
BOARD OF STUDIES
DEPARTMENT OF BOTANY
SRI Y. N. COLLEGE (AUTONOMOUS)
(NAAC ACCREDITED 'A' GRADE COLLEGE)
NARSAPUR - 534 275



SRI Y.N. COLLEGE (AUTONOMOUS) NARASAPUR

Affiliated to Adikavi Nannayya University

Thrice accredited by NAAC at 'A' Grade

Recognized by UGC as "College with Potential for Excellence"

II B.Sc ;III Semester (2018-2021)

Botany Paper-III

(Plant Taxonomy and Embryology)

UNIT –I: INTRODUCTION TO PLANT TAXONOMY & CLASSIFICATION

1. Fundamental components of taxonomy (identification, nomenclature, classification)
2. Taxonomic resources: Herbarium- functions & important herbaria, Botanical gardens, Flora, Keys- single access and multi-access.
3. Botanical Nomenclature- Principles and rules of ICBN (ranks and names; principle of priority, binomial system; type method, author citation, valid-publication).
4. Types of classification- Artificial, Natural and Phylogenetic.
5. Bentham & Hooker's system of classification- merits and demerits.

UNIT –II: SYSTEMATIC TAXONOMY-I

1. Engler & Prantle's system of classification- merits and demerits
2. Phylogeny –origin and evolution of Angiosperms
3. Systematic study and economic importance of the following families: Annonaceae, Brassicaceae, Rutaceae, Curcubitaceae, and Apiaceae.

UNIT –III: SYSTEMATIC TAXONOMY-II

1. Systematic study and economic importance of plants belonging to the following families: Asteraceae, Asclepiadaceae, Lamiaceae, Euphorbiaceae, Arecaceae, and Poaceae.

UNIT –IV: EMBRYOLOGY-I

1. Anther structure, microsporogenesis and development of male gametophyte.
2. Ovule structure and types; Megasporogenesis, development of Monosporic, Bisporic and Tetrasporic types (*Peperomia*, *Drusa*, *Adoxa*) of embryo sacs.

UNIT –V: EMBRYOLOGY-II

1. Pollination and Fertilization (out lines) Endosperm development and types.
 2. Development of Dicot and Monocot embryos, Polyembryony.
-

Books for Reference:

1. Porter, C.L. (): Taxonomy of flowering Plants, Eurasia Publishing House, New Delhi.
2. Lawrence, G.H.M. (1953): Taxonomy of Vascular Plants, Oxford & IBH Publishers, New Delhi, Calcutta.
3. Jefferey, C.(1968) : An Introduction to Plant Taxonomy J.A. Churchill, London.
4. Mathur, R.C.(1970) : Systematic Botany (Angiosperms) Agra Book Stores- Lucknow, Ajmer, Allahabad, Delhi.
5. Maheswari,P(1963) :Recent Advances in the Embryology of Angiosperms(Ed.,) International Society of Plant Morphologists- University of Delhi.
6. Swamy. B.G.L. & Krishnamoorthy. K.V.(1980):From flower to fruit Tata McGraw Hill Publishing Co., Ltd., New Delhi.
6. Maheswari, P.(1985):An Introduction to the Embryology of Angiosperms Tata McGraw Hill Publishing Co.,Ltd., New Delhi.
8. Bhojwani, S.S. & Bhatnagar, S.P. (2000) : The Embryology of Angiosperms (4th Edition) Vikas Publishing House(P)Ltd., UBS P Delhi.

Blue Print (Guidelines to the Paper Setter)

Unit	Essay Questions	Short Note Questions
Unit –I	2	1
Unit – II	2	1
Unit –III	2	2
Unit –IV	2	2
Unit –V	2	2
Total	10	8

APPROVED

1. T. R. Reddy

2. B. S. Reddy

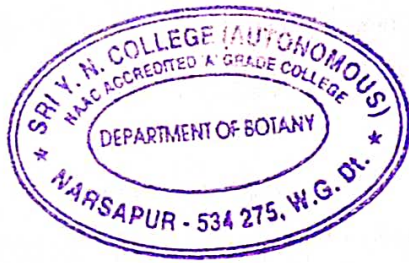
3.

4. A. J. Reddy

5. N. S. Reddy

6.

7. G. Reddy



T. R. Reddy
CHAIRMAN 6/7/19
BOARD OF STUDIES
DEPARTMENT OF BOTANY
SRI Y. N. COLLEGE (AUTONOMOUS)
(NAAC ACCREDITED 'A' GRADE COLLEGE)
NARSAPUR - 534 275

SRI Y.N. COLLEGE (AUTONOMOUS) NARASAPUR

Affiliated to Adikavi Nannayya University

Thrice accredited by NAAC at 'A' Grade

Recognized by UGC as "College with Potential for Excellence"

II B.Sc ;III Semester (2018-2021)

Botany Paper-III

(Plant Taxonomy and Embryology)

Date:

Max.Marks:75

Time:

Duration: 3 Hrs

PART-I

NOTE: Draw neat labelled diagrams wherever necessary for questions in Part-I & II
విభాగము I మరియు II లోని ప్రశ్నలకు అవసరమైనచోట భాగములు గుర్తించిన పటములు వేయుము

Answer any FIVE of the following. Each one carries 5 Marks.

5 x 5=25M

ఈ క్రింది వాటిలో ఏవైనా ఐదింటికి నమాధానము వ్రాయుము. ప్రతి దానికి ఐదు మార్కులు.

1. Binomial Nomenclature ద్వినిామీకరణ
2. Essentials organs of Annonaceae అనోనేసిలో ఆవశ్యక అంగాలు
3. Safety mechanism in Asteraceae ఆస్టరేసిలో భద్రత యాంత్రికం
4. Economic importance of Poaceae పోయేసి ఆర్థిక ప్రాముఖ్యత
5. Anther wall పరాగకోశం గోడ
6. Types of Ovules అండాల రకాలు
7. Cellular endosperm కణమయ అంకురచ్ఛదం
8. Dicot embryo ద్విదళబీజ పిండం

PART-II

Answer any FIVE questions, choosing atleast TWO from each section. 5 x 10= 50M

ఏవేని ఐదు ప్రశ్నలకు నమాధానము వ్రాయుము, ప్రతి విభాగము నుండి కనీసం రెండు వ్రాయుము.

SECTION-A

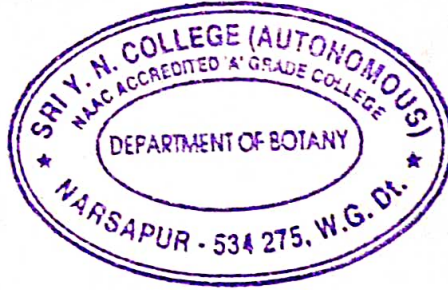
9. Write an essay on International Code of Botanical Nomenclature (ICBN).
అంతర్జాతీయ వృక్షనామీకరణ నియమావళి (ICBN) గూర్చి వ్యాసము వ్రాయుము
10. Give an account of Bentham and Hooker's System of Classification Discuss its merits and demerits.
బెంథామ్ మరియు హూకర్ల వర్గీకరణ గూర్చి తెలిపి దాని ప్రతిభలను, లోపాలను చర్చింపుము
11. Give an account of Engler and Prantl system of classification. Discuss its merits and demerits.
ఎంగ్లర్ మరియు ప్రాంటల్ వర్గీకరణ గూర్చి వ్రాసి దాని ప్రతిభలను మరియు లోపాలను తెలుపుము
12. Describe the salient features of Rutaceae family and mention the economic importance of any three plants.
రూటేసి కుటుంబ ముఖ్య లక్షణములు వర్ణింపుము. ఈ కుటుంబానికి చెందిన మూడు మొక్కల ఆర్థిక ప్రాముఖ్యతను తెలుపుము.
13. Describe the salient features of Asclepiadaceae family.
అస్క్లిపియడేసి కుటుంబ ముఖ్య లక్షణములు వర్ణింపుము.

SECTION-B

14. Enumerate the floral characters of Euphorbiaceae family. Mention the botanical names of any three plants of economic importance
యూఫోర్బియేసి కుటుంబ పుష్పలక్షణాలు తెలిపి, ఆర్థిక ప్రాముఖ్యత కలిగిన ఏవైనా మూడు మొక్కల శాస్త్రీయ నామములు తెలుపుము.
15. Describe the Microsporogenesis.
సూక్ష్మ సిద్ధబీజ జననము గురించి వివరింపుము.
16. Describe the development of different types of Embryo sacs you have studied.
నీవు చదువుకున్న వివిధ రకముల పిండకోశముల వృద్ధిని విశదీకరింపుము.
17. Describe the process of fertilization in Angiosperms.
అవృతబీజాలలో జరిగే ఫలదీకరణ విధానమును వివరింపుము
18. What is meant by Polyembryony? Explain?
బహుపిండత అనగా అర్థమేమిటి? వివరించండి.

APPROVED

1. T. R. ...
2. B. ...
- 3.
4. A. J. ...
5. N. ...
- 6.
7. G. R. ...



CHAIRMAN 6/11/19
BOARD OF STUDIES
DEPARTMENT OF BOTANY
SRI Y.N. COLLEGE (AUTONOMOUS)
(NAAC ACCREDITED 'A' GRADE COLLEGE)
NARSAPUR - 534 275

II B.Sc BOTANY - SEMESTER-III
Paper-III: PRACTICAL
Plant Taxonomy and Embryology

Suggested Laboratory Exercises:

1. Systematic study of locally available plants belonging to the families prescribed in theory syllabus.
2. Demonstration of herbarium techniques.
3. Structure of pollen grains using whole mounts (*Catharanthus, Hibiscus, Acacia, Grass*).
4. Demonstration of Pollen viability test using *in-vitro* germination (*Catharanthus*).
5. Study of ovule types and developmental stages of embryo sac using permanent slides /Photographs.
6. Structure of endosperm (nuclear and cellular); Developmental stages of dicot and monocot Embryos using permanent slides / Photographs
7. Isolation and mounting of embryo (using *Symopsis / Senna / Crotalaria*)
8. Field visits .
9. Study of local flora and submission of Field Note Book.

II B.Sc., BOTANY- SEMESTER -III
PRACTICAL MODEL PAPER- III Plant Taxonomy and Embryology

1. Describe the given Plant specimens A in technical terms. Draw neat labeled diagrams of twig with inflorescence, L.S. of Flower, T.s. of Ovary and floral Diagram. Give floral formula. Identify the family.

1 x 15 = 15 Marks

(Description- vegetative - 4 marks, floral –5 marks; diagrams-5 marks, Identification-1 marks)

2. Derive the plant specimens B & C to their respective families- 2x4 = 08 marks
3. Identification of spotters - D, E ,and F (Embryology) 3x4 =12 marks
4. Herbarium, Record & Viva (submission compulsory) 5 + 10= 15 marks

Total : 50 Marks

APPROVED

1. T. R. ...

2. P. ...

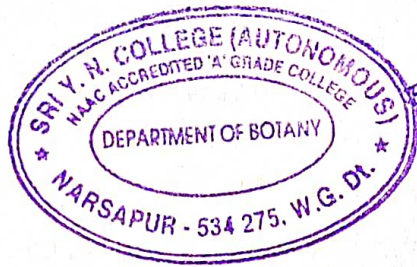
3.

4. A. J. ...

5. N. ...

6.

7. G. ...



T. R. ...
CHAIRMAN
BOARD OF STUDIES
DEPARTMENT OF BOTANY
SRI Y. N. COLLEGE (AUTONOMOUS)
(NAAC ACCREDITED 'A' GRADE COLLEGE)
NARSAPUR - 534 275



SRI Y.N. COLLEGE (AUTONOMOUS) NARASAPUR

Affiliated to Adikavi Nannayya University

Thrice accredited by NAAC at 'A' Grade

Recognized by UGC as "College with Potential for Excellence"

II B.Sc ;IV Semester (2018-2021)

Botany Paper-IV

(Plant Physiology and Metabolism)

UNIT –I: PLANT –WATER RELATIONS

1. Physical properties of water, Importance of water to plant life.
2. Diffusion, imbibition and osmosis; concept & components of Water potential.
3. Absorption and transport of water and ascent of sap.
4. Transpiration –Definition, types of transpiration, structure and opening and closing mechanism of stomata.

UNIT –II: MINERAL NUTRITION & ENZYMES

1. Mineral Nutrition: Essential elements (macro and micronutrients) and their role in plant metabolism, deficiency symptoms.
2. Mineral ion uptake (active and passive transport).
3. Nitrogen metabolism- biological nitrogen fixation in *Rhizobium*, outlines of protein synthesis (transcription and translation).
4. Enzymes: General characteristics, mechanism of enzyme action and factors regulating enzyme action.

UNIT –III: PHOTOSYNTHESIS

1. Photosynthesis: Photosynthetic pigments, photosynthetic light reactions, photo-phosphorylation, carbon assimilation pathways: C₃, C₄, and CAM (brief account)
2. Photorespiration and its significance.
3. Translocation of organic solutes: mechanism of phloem transport, source-sink relationships.

UNIT –IV: PLANT METABOLISM

1. Respiration: Glycolysis, anaerobic respiration, TCA cycle, electron transport system. Mechanism of oxidative phosphorylation.
2. Lipid Metabolism: Types of lipids, Beta-oxidation.

UNIT –V: GROWTH AND DEVELOPMENT

1. Growth and development: definition, phases and kinetics of growth.
2. Physiological effects of phytohormones - Auxins, Gibberellins, Cytokinins, ABA, Ethylene and Brassinosteroids.
3. Physiology of flowering -photoperiodism, role of phytochrome in flowering; Vernalization.
4. Physiology of Senescence and Ageing.

Suggested activity: Seminars, Quiz, Debate, Question and Answer sessions, observing animations of protein biosynthesis in you tube.

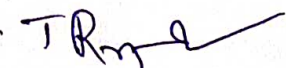
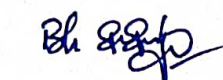
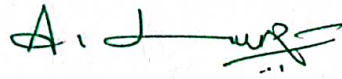


Books for Reference:

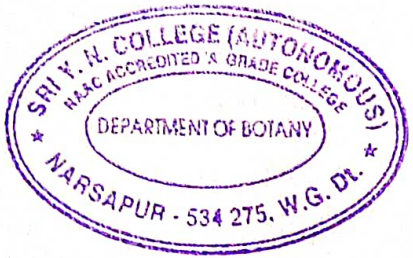
1. Steward, F.C (1964): Plants at Work (A summary of Plant Physiology) Addison-Wesley Publishing Co., Inc. Reading, Massachusetts, Palo alto, London.
2. Devlin, R.M. (1969) : Plant Physiology, Holt, Rinehart & Winston & Affiliated East West Press (P) Ltd., New Delhi .
3. Noggle, R.& Fritz (1989): Introductory Plant Physiology Prentice Hall of India.
4. Lawlor, D.W. (1989): Photosynthesis, metabolism, Control & Physiology ELBS/Longmans-London.
5. Mayer, Anderson & Bonning (1965): Introduction to Plant Physiology D. Van Nostrand . Publishing Co., N.Y.
6. Mukherjee, S. A.K. Ghosh (1998) Plant Physiology ,Tata McGraw Hill Publishers(P) Ltd., New Delhi.
7. Salisbury, F.B & C.W. Ross (1999): Plant Physiology CBS Publishers and Printers, New Delhi.
7. Plummer, D. (1989) Biochemistry—the Chemistry of life ,McGraw Hill Book Co., London, N.Y. New Delhi, Paris, Singapore, Tokyo.
9. Day, P.M.& Harborne, J.B. (Eds.,) (2000): Plant Biochemistry. . Harcourt Asia (P) Ltd., India & Academic Press, Singapore.


Blue Print (Guidelines to the Paper Setter)

Unit	Essay Questions	Short Note Questions
Unit –I	2	1
Unit – II	2	2
Unit –III	2	2
Unit –IV	2	1
Unit –V	2	2
Total	10	8

APPROVED

1. 
2. 
- 3.
4. 
5. 
- 6.
7. 




CHAIRMAN
BOARD OF STUDIES
DEPARTMENT OF BOTANY
SRI Y.N. COLLEGE (AUTONOMOUS)
(UAC ACCREDITED 'A' GRADE COLLEGE)
NARSAPUR - 534 275

SRI Y.N. COLLEGE (AUTONOMOUS) NARASAPUR

Affiliated to Adikavi Nannayya University

Thrice accredited by NAAC at 'A' Grade

Recognized by UGC as "College with Potential for Excellence"

II B.Sc ;IV Semester (2018-2021)

Botany Paper-IV

(Plant Physiology and Metabolism)

Date:

Max.Marks:75

Time:

Duration: 3 Hrs

PART-I

NOTE: Draw neat labelled diagrams wherever necessary for questions in Part-I & II
విభాగము I మరియు II లోని ప్రశ్నలకు అవసరమైనచోట భాగములు గుర్తించిన పటములు వేయుము

Answer any FIVE of the following. Each one carries 5 Marks. 5 x 5=25M

ఈ క్రింది వాటిలో ఏవైనా ఐదింటికి సమాధానము వ్రాయుము. ప్రతి దానికి ఐదు మార్కులు.

- | | |
|------------------------------|----------------------------------|
| 1. Osmosis | ద్రవాభిసరణ |
| 2. Transcription | అనులేఖనం |
| 3. Lock and Key theory | తాళం కప్ప తాళం చెవి సిద్ధాంతం |
| 4. Photosynthetic pigments | కిరణజన్యసంయోగక్రియ వర్ణద్రవ్యాలు |
| 5. Source- sink relationship | సోర్స్ సిన్క్ సంబంధం |
| 6. Anaerobic respiration | అవాయు శ్వాసక్రియ |
| 7. ABA | అబ్ససిక్ ఆమ్లం |
| 8. Vernalization | వెర్నలైజేషన్ |

PART-II

Answer any FIVE questions, choosing atleast TWO from each section. 5 x 10= 50M

ఏవేని ఐదు ప్రశ్నలకు సమాధానము వ్రాయుము, ప్రతీ విభాగము నుండి కనీసం రెండు వ్రాయుము.

SECTION-A

9. Explain the theories of ascent of sap.

ద్రవోద్ధమము ఎట్లా జరుగుతుందో వివరించే సిద్ధాంతాలను గురించి వ్రాయండి.

10. What is Transpiration? Describe the mechanism of closing and opening of stomata.

భాష్పోత్పేకం అనగానేమి? పత్రరంధ్ర చలనాలను వివరించే యాంత్రిక విధానాలను వివరించండి.

11. What are Macronutrients? Explain their deficiency symptoms in plants.

స్థూల పోషకాలు అనగానేమి? మొక్కలలో స్థూల పోషకాల లోప లక్షణాలను వివరింపుము

12. Explain the mechanism of Biological N₂ fixation

సజీవ నత్రజని స్థాపన యాంత్రికమును వివరింపుము

13. Explain the non Cyclic photophosphorylation.

అచక్రియ ఫోటో పాస్ఫోరిలేషన్ వివరింపుము

SECTION-B

14. Describe Calvin's Cycle.

కాల్విన్ వలయమును వర్ణింపుము.

15. Give an account of reactions in Glycolysis

గ్లైకోలసిస్ లోని చర్యలను వివరింపుము

16. Explain the reactions in Beta-oxidation.

బీటా ఆక్సికరణంలోని చర్యలను వివరింపుము.

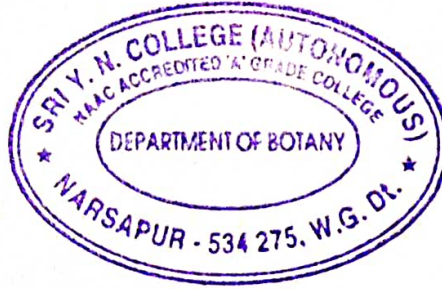
17. What are phytohormones? Explain the physiological effects of Auxins in plants?

ఫైటో హార్మోనులు అనగానేమి? మొక్కల శరీర ధర్మ క్రియలపై ఆక్సిన్ ప్రభావమును విశదీకరించుము.

18. What is Photoperiodism? Describe various aspects of Photoperiodism.

కాంతి కాలావధి అనగా నేమి? దీనికి సంబంధించిన వివిధ అంశాలను వివరించండి.

APPROVED



T. R. M.
CHAIRMAN 6/7/19
BOARD OF STUDIES
DEPARTMENT OF BOTANY
SRI Y.N. COLLEGE (AUTONOMOUS)
(NAAC ACCREDITED 'A' GRADE COLLEGE)
NARSAPUR - 534 275

1. *T. R. M.*

2. *Dr. K. S. R.*

3.

4. *A. J. S.*

5. *N. S. C.*

6.

7. *G. R.*

**II B. Sc BOTANY SEMESTRE- IV, Paper-IV: PRACTICAL
SYLLABUS PAPER-IV: Plant Physiology and Metabolism**

Suggested Laboratory Exercises:

1. Osmosis –by potato osmoscope experiment
2. Determination of osmotic potential of plant cell sap by plasmolytic method using leaves of *Rhoeo / Tradescantia*.
3. Structure of stomata (dicot & monocot)
4. Determination of rate of transpiration using cobalt chloride method.
5. Demonstration of transpiration by Ganongs
6. Demonstration of ascent of sap/Transpiration pull.
6. Effect of Temperature on membrane permeability by colorimetric method.
7. Study of mineral deficiency symptoms using plant material/photographs.
8. Separation of chloroplast pigments using paper chromatography technique.
9. Rate of photosynthesis under varying CO_2 concentrations.
10. Effect of light intensity on oxygen evolution in photosynthesis using Wilmott'. bubbler

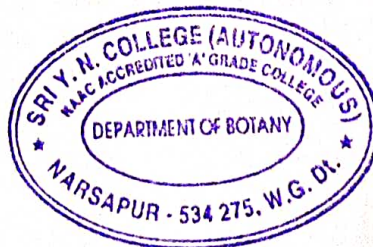
**II B. Sc –SEMESTER- IV, BOTANY PRACTICAL MODEL PAPER
PAPER- IV - Plant Physiology and Metabolism**

1. Perform the Experiments A & B. Give the aim, principle, procedure and observation. Tabulate the results if any. Draw labeled diagram. 2 x 15 = 30 marks
2. Give the protocol of the experiments C & D 2 x 5 = 10 marks
3. Record & Viva

10 marks

50 marks

APPROVED



CHAIRMAN
6/12/19
BOARD OF STUDIES
DEPARTMENT OF BOTANY
SRI Y.N. COLLEGE (AUTONOMOUS)
(NAAC ACCREDITED 'A' GRADE C)
NARSAPUR - 534 275

1. T R...
2. B. S...
- 3.
4. A. J...
5. N...
- 6.
7. G. R...

SRI Y.N. COLLEGE (AUTONOMOUS) NARASAPUR

Affiliated to Adikavi Nannayya University

Thrice accredited by NAAC at 'A' Grade

Recognized by UGC as "College with Potential for Excellence"

III B. Sc - SEMESTER- V(2017-2020)

BOTANY PAPER – V

Cell Biology, Genetics and Plant Breeding

Total hours of teaching 60 hrs @ 3 hrs per week

UNIT – I CELL BIOLOGY: (12 hrs)

1. Cell, the unit of life- Cell theory, Prokaryotic and eukaryotic cells; Eukaryotic cell components.
2. Ultra structure and functions of cell wall and cell membranes.
3. Chromosomes: morphology, organization of DNA in a chromosome (nucleosome model), Euchromatin and heterochromatin.

UNIT – II GENETIC MATERIAL: (12 hrs)

1. DNA structure (Watson & Crick model) and replication of DNA (semi-conservative)
2. Types of RNA (mRNA, tRNA, rRNA), their structure and function.

UNIT – III MENDELIAN INHERITANCE: (12 hrs)

1. Mendel's laws of Inheritance (Mono- and Di- hybrid crosses); backcross and test cross.
2. Chromosomal mapping – 2-point & 3-point test cross.
3. Linkage: concept, complete and incomplete linkage, coupling and repulsion
4. Crossing Over: concept & significance.

UNIT – IV PLANT BREEDING: (12 hrs)

1. Introduction and Objectives of plant breeding.
2. Methods of crop improvement: Procedure, advantages and limitations of Introduction, Selection, and Hybridization (outlines only).

UNIT – V BREEDING, CROP IMPROVEMENT AND BIOTECHNOLOGY: (12 hrs)

1. Role of mutations in crop improvement.
2. Role of somaclonal variations in crop improvement.
3. Molecular breeding – use of DNA markers in plant breeding and crop improvement (RAPD, RFLP).

Suggested activity: Seminar, Debate, Quiz, observation of live cells and nucleus in Onion peels, observation of Meiotic nuclei in Maize pollen. Solving Genetics problems.

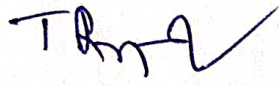
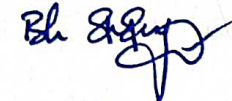

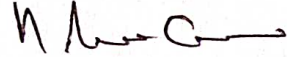

Books for Reference:

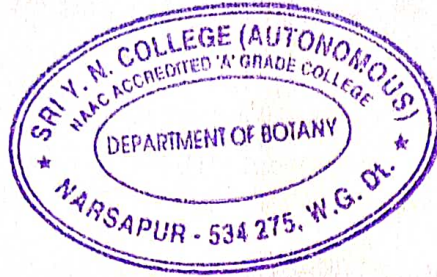
1. Old, R.W. and Primrose S.B. 1994, Principles of Gene Manipulation Blackwell Science, London 2. Grierson, D. and Convey S.N. 1989, Plant Molecular Biology, Blackie Publishers, New York.
2. Lea, P.J. and Leegood R.C. 1999, Plant Biochemistry and Molecular Biology. John Wiley and Sons. London.
3. Power C.B., 1984, Cell Biology, Himalaya Publishing Co. Mumbai
4. De. Robertis and De Robertis, 1998, Cell and Moleceular Biology, K.M. Verghese and
5. Sinnott, E.W., L.C. Dunn & J. Dobshansky (1958) : Principles of Genetics (5th Edition) McGraw Hill Publishing Co., N.Y. Toronto, London.
6. Winchester, A.M. (1958) : Genetics(3rd Edition) Oxford & IBH Publishing House, Calcutta, Bombay, New Delhi.
7. Singleton, R.(1963) : Elementary Genetics, D. Van Nostrand Co., Ltd., Inc., N.Y. & Affiliated East West Press (P) Ltd., New Delhi.
8. Strickberger, M.W. (1976): Genetics(2nd Edition) MacMillan Publishing Co., Inc., N.Y.. London
9. Watson, J.D. (1977): Molecular Biology of the Gene, W.A. Benjamin, Inc., Menlo Park-California, Reading-Massachusetts, London, Amsterdam, Don Mills, Ontario, Sydney.
10. Gardner,E.J & Snusted, D.P.(1984): Principles of Genetics (7thedition) John Wiley & Sons, N.Y. Chichester, Brisbane, Toronto, Singapore.
11. Lewin, B. (1985) Genes VII Wiley Eastern Ltd., New Delhi, Bombay, Calcutta, Madras, Hydrabad.
12. Allard R.W(1999): The Principles of Plant Breeding, John & Wiley and Sons.
13. Poelman J.M: Breeding Field Crops, Springer.
14. George Acquaaah(2012):Principles of Plant Genetics & Breeding: Wiley-Blackwell.


Blue Print (Guidelines to the Paper Setter)

Unit	Essay Questions	Short Note Questions
Unit –I	2	2
Unit – II	2	1
Unit –III	2	2
Unit –IV	2	1
Unit –V	2	2
Total	10	8

APPROVED

1. 
2. 
- 3.
4. 
5. 
- 6.
7. 




CHAIRMAN
BOARD OF STUDIES
DEPARTMENT OF BOTANY
SRI Y.N. COLLEGE (AUTONOMOUS)
(NAAC ACCREDITED 'A' GRADE COLLEGE)
NARSAPUR - 534 275

III B. Sc - BOTANY SYLLABUS SEMESTER- V

Practical Paper-V: CELL BIOLOGY, GENETICS AND PLANT BREEDING

Total hours of teaching 30hrs @ 2hrs per week

Suggested Laboratory Exercises:

1. Study of the structure of cell organelles through photomicrographs.
2. Study of structure of plant cell through temporary mounts.
3. Study of various stages of mitosis using cytological preparation of Onion root tips.
4. Study of effect of organic solvent on permeability of cell membrane.
5. Numerical problems solving Mendel' Laws of inheritance
6. Chromosome mapping using 3 point test cross data.
7. Hybridization techniques – emasculation, bagging (for demonstration only).
8. Field visit to a plant breeding research station.

III B. Sc – SEMESTER- V, BOTANY PRACTICAL MODEL PAPER

PAPER-V: CELL BIOLOGY, GENETICS AND PLANT BREEDING

1. Perform the Experiment A .Perform squash on onion root tip, prepare the slide, identify at least one division stage. Write the procedure and draw the diagram of reported stage.

1 x 15 = 15marks

2. Describe the procedure of Hybridization technique B

1 x 10 = 10 marks

3. Solving numerical problems on Mendelian inheritance C,D

2x 7 1/2 = 15 marks

1. Record & Viva

= 10 marks

50 marks

A-Onion root squash technique

B- Emasculation & Bagging

C&D Numerical problems on Mendelian Inheritance.

APPROVED

1. T Roy 6/2/19

2. Bh 887

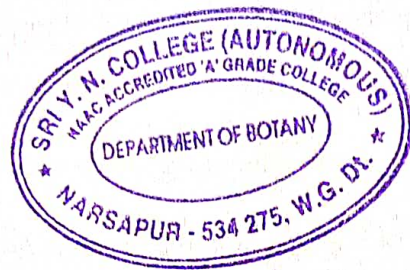
3.

4. A. J. ~~_____~~

5. N. ~~_____~~

6.

7. G. Roy



T Roy 6/2/19
CHAIRMAN
BOARD OF STUDIES
DEPARTMENT OF BOTANY
SRI Y.N. COLLEGE (AUTONOMOUS)
(NAAC ACCREDITED 'A' GRADE COLLEGE)
NARSAPUR - 534 275

SRI Y.N. COLLEGE (AUTONOMOUS) NARASAPUR
Affiliated to Adikavi Nannaya University
Thrice accredited by NAAC at 'A' Grade
Recognized by UGC as "College with Potential for Excellence"
III B.Sc ; V Semester (2017-2020)
Botany Paper-V
(Cell Biology, Genetics and Plant Breeding)

Date:

Max.Marks:75

Time:

Duration: 3 Hrs

PART-I

NOTE: Draw neat labelled diagrams wherever necessary for questions in Part-I & II
విభాగము I మరియు II లోని ప్రశ్నలకు అవసరమైనచోట భాగములు గుర్తించిన పటములు వేయుము

Answer any FIVE of the following. Each one carries 5 Marks. 5 x 5=25M
ఈ క్రింది వాటిలో ఏవైనా ఐదింటికి సమాధానము వ్రాయుము. ప్రతి దానికి ఐదు మార్కులు.

1. Chloroplast structure
హారిత రేణువు నిర్మాణము
2. Differences between Euchromatin and Heterochromatin
యూక్రోమాటిన్ మరియు హెటెరోక్రోమాటిన్ మధ్య భేదాలు
3. t RNA structure
t RNA నిర్మాణం
4. Test Cross
పరీక్షా సంకరణము
5. Significance of Crossing over
వినిమయం యొక్క ప్రాముఖ్యత
6. Emasculation
విపుంసీకరణ
7. Role of Somaclonal variations in crop improvement
సస్యాభివృద్ధిలో శారీరక వైవిధ్యాల పాత్రను గూర్చి వ్రాయండి.
8. RFLP
ఆర్. ఎఫ్. ఎల్. పి

PART-II

Answer any FIVE questions, choosing atleast TWO from each section. 5 x 10= 50M
ఏవేని ఐదు ప్రశ్నలకు నమాధానము వ్రాయుము, ప్రతి విభాగము నుండి కనీసం రెండు వ్రాయుము.

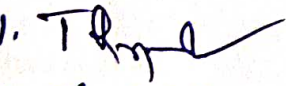

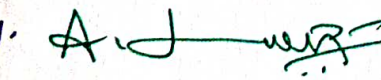
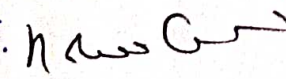

SECTION-A

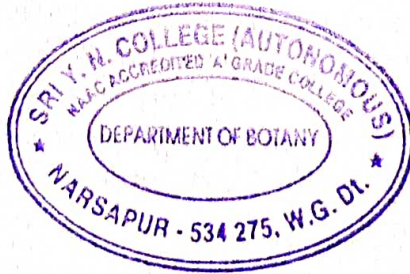
9. Describe the detailed Structure and functions of cell membrane
కణత్వచం విపుల నిర్మాణం మరియు విధులను పర్ణింపుము
10. What is Nucleosome? Give an account of Solenoid model of Chromosome
న్యూక్లియోజోం అనగానేమి? క్రోమోసోము యొక్క సోలినాయిడ్ నమునాను పర్ణించండి.
11. Explain the semiconservative DNA replication in Eukaryotes
నిజకేంద్రక జీవులలో DNA అర్థ సంరక్షక ప్రతికృతిని వివరింపుము.
12. Write an essay on types of RNA structure and their functions.
వివిధ రకాలైన RNA నిర్మాణం మరియు విధులను గూర్చి వ్యాసము వ్రాయండి
13. Describe the Mendel's Laws of Inheritance
మెండల్ అనువంశిక సూత్రాలను వివరించండి.

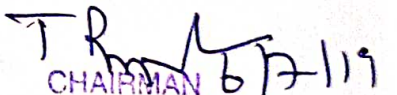
SECTION-B

14. What is Linkage? Describe the various types in Linkages
సహలగ్నత అంటే ఏమిటి? సహలగ్నతలోని వివిధ రకాలను వివరింపుము.
15. Write an essay on Plant breeding.
వృక్ష ప్రజననము గూర్చి వ్యాసము వ్రాయండి.
16. What is Selection? Describe various types of Selection
వరణము అనగానేమి? వివిధ రకముల వరణములను పర్ణింపుము
17. Explain the role of Mutations in Crop Improvement
సస్యాభివృద్ధిలో ఉత్పరి వర్తనాల పాత్రను గూర్చి వివరించండి.
18. Write an essay on Molecular breeding.
అణుస్థాయి ప్రజననము గూర్చి వ్యాసం వ్రాయండి.

APPROVED.

1. 
2. 
- 3.
4. 
5. 
- 6.
7. 




CHAIRMAN
BOARD OF STUDIES
DEPARTMENT OF BOTANY
SRI Y.N. COLLEGE (AUTONOMOUS)
(NAAC ACCREDITED 'A' GRADE COLLEGE)
NARSAPUR - 534 275

SRI Y.N. COLLEGE (AUTONOMOUS) NARASAPUR

Affiliated to Adikavi Nannayya University

Thrice accredited by NAAC at 'A' Grade

Recognized by UGC as "College with Potential for Excellence"

III B. Sc - SEMESTER- V (2017-2020)

BOTANY PAPER-VI

Plant Ecology & Phytogeography

Total hours of teaching 60 hrs @ 3 hrs per week

UNIT – I. Elements of Ecology

(12 hrs)

1. Ecology: definition, branches and significance of ecology.
2. Climatic Factors: Light, Temperature.
3. Edaphic Factor: Origin, formation, composition and soil profile.
4. Biotic Factor: Interactions between plants and animals.

UNIT– II. Ecosystem Ecology

(12 hrs)

1. Ecosystem: Concept and components, energy flow, Food chain, Food web, Ecological pyramids.
2. Productivity of ecosystem-Primary, Secondary and Net productivity.
3. Biogeochemical cycles- Carbon, Nitrogen and Phosphorous.

UNIT – II Population & Community Ecology

(12 hrs)

1. Population -definition, characteristics and importance, outlines –ecotypes.
2. Plant communities- characters of a community, outlines – Frequency, density, cover, life forms, competition.
3. Interaction between plants growing in a community.

UNIT – IV Phytogeography

(12 hrs)

1. Principles of Phytogeography, Distribution (wides, endemic, discontinuous species)
2. Phytogeographic regions of India.
3. Phytogeographic regions of World.
4. Endemism – types and causes

UNIT- V: Plant Biodiversity and its importance

(12 hrs)

1. Definition, levels of biodiversity-genetic, species and ecosystem.
2. Biodiversity hotspots- Criteria, Biodiversity hotspots of India.
3. Loss of biodiversity – causes and conservation (*In-situ* and *ex-situ* methods).
4. Seed banks - conservation of genetic resources and their importance

Suggested activity : Collection of different soils, studying their texture, observing polluted water bodies, student study projects, debates on man's activity on ecosystem and biodiversity conservation methods, visiting a nearest natural vegetation area. Visit to NGO, working in the field of biodiversity and report writing; to study Honey Bees and plants yielding honey.

Books for Reference:

1. Daubenmire, R.F. (): Plants & Environment (2nd Edn.,) John Wiley & Sons., New York
2. Puri, .G.S. (1960): Indian Forest Ecology (Vol.I & II) Oxford Book Co., New Delhi & Calcutta.
3. Billings, W.B. (1965): Plants and the Ecosystem Wadsworth Publishing Co., Inc., Belmont.
4. Misra, R. (1968): The Ecology work Book Oxford & INH Publishing Co., Calcutta
5. Odum E.P. (1971): Fundamentals of Ecology (2nd Edn.,) Saunders & Co., Philadelphia & Natraj Publishers, Dehradun.
6. Odum E.P. (1975): Ecology By Holt, Rinert & Winston.
7. Oosting, H.G. (1978): Plants and Ecosystem Wadworth Belmont.
8. Kochhar, P.L. (1975): Plant Ecology. (9th Edn.,) New Delhi, Bombay, Calcutta-226pp.,
9. Kumar, H.D. (1992): Modern Concepts of Ecology (7th Edn.,) Vikas Publishing Co., New Delhi.
10. Kumar H.D. (2000): Biodiversity & Sustainable Conservation Oxford & IBH Publishing 1. Co Ltd. New Delhi.
11. Newman, E.I. (2000): Applied Ecology Blackwell Scientific Publisher, U.K.
12. Chapman, J.L.&M.J. Reiss (1992): ecology (Principles & Applications). Cambridge University Press, U.K.
13. Cain, S.A . (1944): Foundations of Plant Geography Harper & Brothers, N.Y.
14. Mani, M.S (1974): Ecology & Biogeography of India Dr. W. Junk Publishers, The Haque
15. Good, R. (1997): The Geography of flowering Plants (2nd Edn.) Longmans, Green & Co., Inc., London & Allied Science Publishers, New Delhi

Blue Print (Guidelines to the Paper Setter)

Unit	Essay Questions	Short Note Questions
Unit –I	2	1
Unit – II	2	2
Unit –III	2	1
Unit –IV	2	2
Unit –V	2	2
Total	10	8

APPROVED

1. T. Prasad

2. P. S. Srinivas

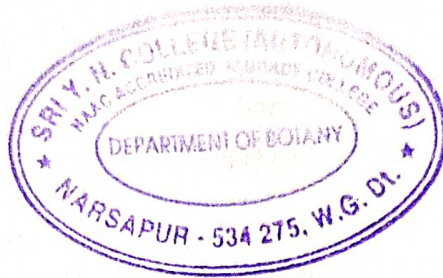
3.

4. A. J. Srinivas

5. N. Srinivas

6.

7. G. Raju



T. Prasad
CHAIRMAN
BOARD OF STUDIES
DEPARTMENT OF BOTANY
SRI Y.N. COLLEGE (AUTONOMOUS)
(NAAC ACCREDITED 'A' GRADE COLLEGE)
NARSAPUR - 534 275



SRI Y.N. COLLEGE (AUTONOMOUS) NARASAPUR

Affiliated to Adikavi Nannayya University

Thrice accredited by NAAC at 'A' Grade

Recognized by UGC as "College with Potential for Excellence"

III B.Sc ; V Semester (2017-2020)

Botany Paper-VI

(Plant Ecology and Phytogeography)

Date:

Max.Marks:75

Time:

Duration: 3 Hrs

PART-I

NOTE: Draw neat labelled diagrams wherever necessary for questions in Part-I & II

విభాగము I మరియు II లోని ప్రశ్నలకు అవసరమైనచోట ఛాగములు గుర్తించిన పటములు వేయుము

Answer any FIVE of the following. Each one carries 5 Marks.

5 x 5=25M

ఈ క్రింది వాటిలో ఏవైనా ఐదింటికి సమాధానము వ్రాయుము. ప్రతి దానికి ఐదు మార్కులు.

- | | |
|---------------------------|--------------------|
| 1. Soil profile | మృత్తిక పార్శ్వరేఖ |
| 2. Food Web | అహారపు వల |
| 3. Secondary productivity | ద్వితీయ ఉత్పాదకత |
| 4. Biological Spectrum | జీవ సంబంధ వర్ణపటం |
| 5. Endemism | స్థానీయత |
| 6. Savanna Grass lands | సవన్నాగడ్డి భూములు |
| 7. Seed banks | విత్తన బ్యాంకులు |
| 8. Western ghats | పశ్చిమ కనుమలు |

PART-II

Answer any FIVE questions, choosing atleast TWO from each section.

5 x 10= 50M

ఏవేని ఐదు ప్రశ్నలకు సమాధానము వ్రాయుము, ప్రతి విభాగము నుండి కనీసం రెండు వ్రాయుము.

SECTION-A

9. Give an account of role of light factor on plants
మొక్కలలో కాంతి కారకము యొక్క పాత్రను గురించి వ్రాయండి.
10. Write an essay on Biotic factors.
జీవ సంబంధ కారకాలపై ఒక వ్యాసము వ్రాయండి.
11. Give an account of energy flow in an ecosystem.
ఆవరణ వ్యవస్థలో శక్తి ప్రవాహం జరిగే విధానం తెలుపుము.

12. Write an essay on Nitrogen cycle.

నత్రజనీ వలయం గూర్చి వ్యాసము వ్రాయుము.

13. Define population. Discuss briefly the various characteristics that are shown by population.

జనాభా నిర్వచించండి. జనాభా చూపించే వివిధ లక్షణాలను చర్చించుము.

SECTION-B

14. Write an essay on characteristics of a community.

సమూహము యొక్క లక్షణాలను గూర్చి వ్యాసం వ్రాయండి.

15. Give an account of phytogeographic regions of world.

ప్రపంచంలోని వృక్ష భౌగోళిక మండలాలను గూర్చి వ్రాయండి.

16. Give an account of phytogeographic regions of India.

భారతదేశంలోని వృక్ష భౌగోళిక మండలాలను గూర్చి వ్రాయండి

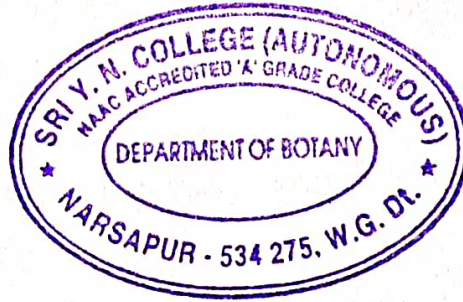
17. What is Biodiversity ? Explain the types of Bio diversity.

జీవ వైవిధ్యం అనగానేమి? జీవ వైవిధ్యం రకాలను వివరించండి.

18. Write an essay on conservation methods of biodiversity.

జీవ వైవిధ్యాన్ని సంరక్షించే వివిధ పద్ధతులను గూర్చి వ్యాసం వ్రాయండి.

APPROVED



CHAIRMAN 617119
BOARD OF STUDIES
DEPARTMENT OF BOTANY
SRI Y.N. COLLEGE (AUTONOMOUS)
(NAAC ACCREDITED 'A' GRADE COLLEGE)
NARSAPUR - 534 275

1. T Ranga

2. B. Srinivas

3.

4. A. J. Srinivas

5. H. Srinivas

6.

7. G. Ranga

**III B. Sc - SEMESTER- V: BOTANY
PRACTICAL PRACTICAL PAPER-VI:
PLANT ECOLOGY & PHYTOGEOGRAPHY**

0. Study of instruments used to measure microclimatic variables; soil thermometer, maximum and minimum thermometer, anemometer, rain gauge, and lux meter.
 1. Permeability (percolation; total capacity as well as rate of movement) of different soil samples.
-
2. Determination of soil pH
 3. Study of morphological and anatomical adaptations of hydrophytes and xerophytes (4 each)
 4. Determination of minimal quadrat size for the study of herbaceous vegetation in the college campus by species area curve method
 6. Study of Phytoplankton and macrophytes from water bodies.
 7. To study field vegetation with respect to stratification, canopy cover and composition.
 8. Study of plants included in agro forestry and social forestry.
 9. To locate the hotspots, phyto geographical regions and distribution of endemic plants in the map of India.
 10. SSSThe following practical should be conducted in the Field/lab with the help of photo-graphs, herbarium, Floras, Red data book- Study of endangered plants species, critically endangered plants species, vulnerable plant species and monotypic endemic genera of India.

**III B. Sc - SEMESTER- V: BOTANY PRACTICAL
MODEL PAPER PAPER-VI: PLANT ECOLOGY
& PHYTOGEOGRAPHY**

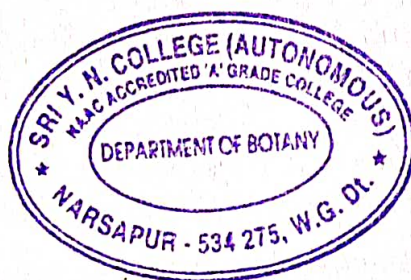
1. Study Project under supervision	= 15 Marks
2. Record & Viva-Voce	= 10 Marks
3. Experiment A	= 10 Marks
4. Anatomical adaptations of B (Section cutting)	= 10 Marks
5. Spotters C&D (2x2 1/2)	= 5 Marks

Total =	50 Marks

1. Study Project of a surrounding Ecosystem (terrestrial or aquatic)(plant diversity, animal diversity, human activity, pollution levels, restoration efforts under supervision.
2. Presentation of the project work in Q & A session.
3. A -determination of soil porosity/PH/percolation/retaining capacity.
4. B- Xerophyte/Hydrophyte anatomical adaptations.
5. C & D-anemometer/rain gauze/lux meter.

APPROVED

1. T. Royal
2. Ph. Raju
- 3.
4. A. J. ...
5. N. ...
- 6.
7. G. ...



T. Royal
CHAIRMAN 6/7/19
**BOARD OF STUDIES
DEPARTMENT OF BOTANY
SRI Y.N. COLLEGE (AUTONOMOUS)
(NAAC ACCREDITED 'A' GRADE COLLEGE)
NARSAPUR - 534 275**



SRI Y.N. COLLEGE (AUTONOMOUS) NARASAPUR

Affiliated to Adikavi Nannayya University

Thrice accredited by NAAC at 'A' Grade

Recognized by UGC as "College with Potential for Excellence"

III B.Sc ; SEMESTER-VI (2017-2020)

BOTANY PAPER-VII (C) ELECTIVE

(Plant tissue culture and its biotechnological applications)

UNIT I: PLANT TISSUE CULTURE – 1

(12hrs)

1. History of plant tissue culture research - basic principles of plant tissue callus culture, meristem culture, organ culture, Totipotency of cells, differentiation and dedifferentiation.
2. Methodology - sterilization (physical and chemical methods), culture media, Murashige and Skoog's (MS medium), phytohormones, medium for micro-propagation/ clonal propagation of ornamental and horticulturally important plants.
3. Callus subculture maintenance, growth measurements, morphogenesis in callus culture – organogenesis, somatic embryogenesis.

UNIT-II: PLANT TISSUE CULTURE -2

(12hrs)

1. Endosperm culture – Embryo culture -culture requirements – applications, embryo rescue technique.
2. Production of secondary metabolites.
3. Cryopreservation; Germplasm conservation.

UNIT III: RECOMBINANT DNA TECHNOLOGY

(12hrs)

1. Restriction Endonucleases (history, types I-IV, biological role and application); concepts of restriction mapping.
2. Cloning Vectors: Prokaryotic (pUC 18, pBR322, Ti plasmid and Lambda phage, Eukaryotic Vectors (YAC and briefly PAC)
3. Gene cloning (Bacterial Transformation and selection of recombinant clones, PCR mediated gene cloning)
4. Construction of genomic and cDNA libraries, screening DNA libraries to obtain gene of interest by complementation technique, colony hybridization.

UNIT IV: METHODS OF GENE TRANSFER

(12hrs)

1. Methods of gene transfer- Agrobacterium-mediated, direct gene transfer by Electroporation, Microinjection, Micro projectile bombardment.
2. Selection of transgenics– selectable marker and reporter genes (Luciferase, GUS, GFP).

UNIT V: APPLICATIONS OF BIOTECHNOLOGY

(12 hrs)

1. Applications of Plant Genetic Engineering – crop improvement, herbicide resistance, insect resistance, virus resistance.
2. Genetic modification – transgenic plants for pest resistant (Bt-cotton);
Herbicide resistance (Round Up Ready soybean);
Improved agronomic traits –(flavrSavr tomato, Golden rice);
Improved horticultural varieties (Moon dust carnations)

Books for Reference:

1. Pullaiah, T. and M.V. Subba Rao. 2009. Plant Tissue culture. Scientific Publishers, New Delhi.
2. Bhojwani, S.S. and Razdan, M.K., (1996). Plant Tissue Culture: Theory and Practice. Elsevier Science Amsterdam. The Netherlands.
3. Glick, B.R., Pasternak, J.J. (2003). Molecular Biotechnology- Principles and Applications of recombinant DNA. ASM Press, Washington.
4. Bhojwani, S.S. and Bhatnagar, S.P. (2011). The Embryology of Angiosperms. Vikas Publication House Pvt. Ltd., New Delhi. 5th edition.
5. Snustad, D.P. and Simmons, M.J. (2010). Principles of Genetics. John Wiley and Sons, U.K. 5th edition.
6. Stewart, C.N. Jr. (2008). Plant Biotechnology & Genetics: Principles, Techniques and Applications. John Wiley & Sons Inc. U.S.A.

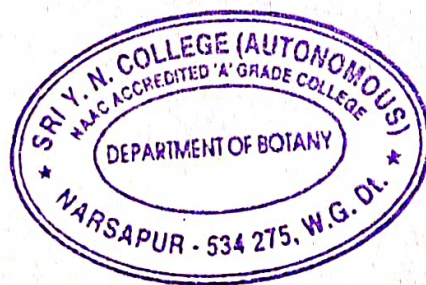
Suggested Activities: In vitro initiation of callus on artificial medium, seminars on utilization of rDNA technology, debates on applications of Biotechnology (whether it is a boon or bane to the society) studying growth patterns, vegetative characteristics of Bt.cotton and identifying the features of its pest resistance

Blue Print (Guidelines to the Paper Setter)

Unit	Essay Questions	Short Note Questions
Unit -I	2	2
Unit - II	2	1
Unit -III	2	2
Unit -IV	2	1
Unit -V	2	2
Total	10	8

APPROVED

1. T Roy
2. Bh. S. S. S.
- 3.
4. A. J. S.
5. H. S. S.
- 6.
7. G. R. S.



T. Roy
CHAIRMAN 6/7/19
BOARD OF STUDIES
DEPARTMENT OF BOTANY
SRI Y. N. COLLEGE (AUTONOMOUS)
(NAAC ACCREDITED 'A' GRADE COLLEGE)
NARSAPUR - 534 275



SRI Y.N. COLLEGE (AUTONOMOUS) NARASAPUR – 534 275
Affiliated to Adikavi Nannayya University
Thrice accredited by NAAC at 'A' Grade
Recognized by UGC as "College with Potential for Excellence"
III B.Sc ; SEMESTER –VI(2017-2020)
BOTANY PAPER-VIIC(ELECTIVE)
(Plant Tissue Culture and its biotechnological applications)

Date:
Time:

Max.Marks:75
Duration: 3 Hrs

PART-I

NOTE: Draw neat labelled diagrams wherever necessary for questions in Part-I & II
విభాగము I మరియు II లోని ప్రశ్నలకు అవసరమైనచోట భాగములు గుర్తించిన పటములు వేయుము

Answer any FIVE of the following. Each one carries 5 Marks. 5 x 5=25M
ఈ క్రింది వాటిలో ఏవైనా ఐదింటికి సమాధానము వ్రాయుము. ప్రతి దానికి ఐదు మార్కులు.

- | | |
|------------------------------|-----------------------------------|
| 1. M.S Medium | M.S యానకం |
| 2. Somatic embryogenesis | శాఖీయ పిండాభివృద్ధి |
| 3. Cryopreservation | క్రయోప్రిజర్వేషన్ |
| 4. Restriction Endonucleases | రిస్ట్రిక్షన్ ఎండ్ న్యూక్లియేజ్లు |
| 5. c DNA Libraries | c DNA లైబ్రెరీలు |
| 6. Agrobacterium | అగ్రో బాక్టీరియా |
| 7. Crop improvement | సస్యాభివృద్ధి |
| 8. Golden rice. | బంగారు పరి |

PART-II

Answer any FIVE questions, choosing atleast TWO from each section. 5 x 10= 50M
ఏవేని ఐదు ప్రశ్నలకు సమాధానము వ్రాయుము, ప్రతీ విభాగము నుండి కనీసం రెండు వ్రాయుము.

SECTION-A

9. Write an essay on different aspects coming across in Tissue Culture.
కణజాల వర్ధనములోని వివిధ అంశములపై వ్యాసము వ్రాయుము.
10. Write an essay on Callus culture.
కాలస్ వర్ధనం పై ఒక వ్యాసము వ్రాయుము.
11. Describe the various steps in embryo culture.
పిండ వర్ధనంలోని వివిధ దశలను వివరింపుము.
12. Write an essay on production of secondary metabolites.
ద్వితీయా జీవక్రియా ఉత్పన్నాల యొక్క ఉత్పత్తి పై వ్యాసము వ్రాయుము.
13. Explain the different types of cloning vectors.
వివిధ రకముల క్లోనింగ్ వాహకాలను గూర్చి వివరింపుము.

SECTION-B

14. Describe the process of Gene cloning.

జన్యు క్లోనింగ్ విధానమును వర్ణింపుము.

15. Explain the gene transfer methods.

జన్యు బదిలీ పద్ధతులను గూర్చి వివరింపుము.

16. Write an essay on role of selectable markers in selection of transgenics.

జన్యు పరివర్తితాలను గుర్తించుటలో ఎంచుకోబడిన మార్కర్ల యొక్క పాత్రను గూర్చి వ్యాసము వ్రాయుము.

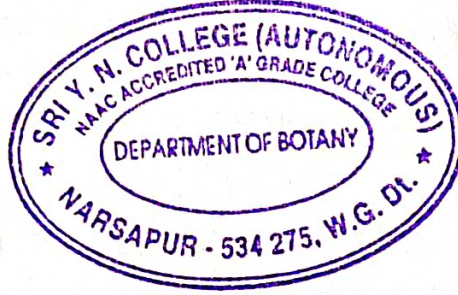
17. Explain the applications of biotechnology in various fields.

వివిధ రంగములలో జీవ సాంకేతిక శాస్త్ర అనువర్తనాలను గూర్చి వివరింపుము.

18. What are transgenic plants? Write about any four transgenic plants.

జన్యు పరివర్తిత మొక్కలు అనగానేమి? ఏవైనా నాలుగు జన్యు పరివర్తిత మొక్కలను గూర్చి వ్రాయుము.

APPROVED



T. R. S. K.
5/7/11
BOARD OF STUDIES
DEPARTMENT OF BOTANY
SRI Y.N. COLLEGE (AUTONOMOUS)
(NAAC ACCREDITED 'A' GRADE COLLEGE)
NARSAPUR - 534 275

1. *T. R. S. K.*

2. *R. S. K.*

3.

4. *A. J. S.*

5. *N. S. G.*

6.

7. *G. R. S.*

APPROVED

1. *T. R. ...*

2.

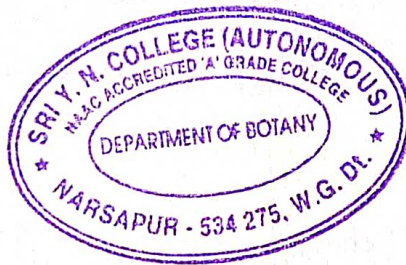
3.

4. *A. J. ...*

5. *N. ...*

6.

7.



T. R. ...
CHAIRMAN 17/19
BOARD OF STUDIES
DEPARTMENT OF BOTANY
SRI Y.N. COLLEGE (AUTONOMOUS)
(NAAC ACCREDITED 'A' GRADE COLLEGE)
NARSAPUR - 534 275

III B. Sc – BOTANY PRACTICALSYLLABUS
SEMESTER- VI
Practical Paper VII-(C): Plant Tissue Culture & Plant Biotechnology
Total hours of teaching 30hrs @ 2hrs per week

1. (a) Preparation of MS medium.
 (b) Demonstration of in vitro sterilization methods and inoculation methods using leaf and nodal explants of Tobacco/ Datura/ Brassica etc.
2. Study of embryo and culture, micro propagation of Banana, somatic embryogenesis, artificial seeds through photographs.
3. Construction of restriction map of circular and linear DNA from the data provided.
4. Study of methods of gene transfer through photographs: Agrobacterium-mediated, direct gene transfer by electroporation, microinjection, and micro projectile bombardment.
5. Different steps involved in genetic engineering for production of Bt. cotton, Goldenrice, Flaver saver tomato through photographs.
7. Isolation of plasmid DNA.
8. Restriction digestion and gel electrophoresis of plasmid DNA (optional)
9. Field visit to a lab involved in tissue culture
10. Study project under supervision of lecturer – tissue culture/ genetic engineering

PRACTICAL MODEL PAPER

Paper-VII-(C) : Plant Tissue Culture & Plant Biotechnology

1. Project work	15 M
Viva voice on study project	05M
2. DNA isolation technique / Synthetic seeds procedure	08M
3. Identify and write notes on A, B, C	3*4=12M
4. Field report	05M
5. Record	05M

APPROVED

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.



BOARD OF STUDIES
DEPARTMENT OF BOTANY
SRI Y. N. COLLEGE (AUTONOMOUS)
(NAAC ACCREDITED 'A' GRADE COLLEGE)
NARSAPUR - 534 275