

NAGARJUNA GOVERNMENT COLLEGE (Autonomous), NALGONDA

Re accredited by NAAC with 'A' Grade


DEPARTMENT OF BOTANY

BOARD OF STUDIES MEETING - 2017

CONSTITUTION OF BOARD OF STUDIES

The Board of studies in the Department of Botany has been constituted with the following members for the academic year 2017-18.

S.NO	CATEGORY	NAME & DESIDNATION	ADRESS/MAIL/PHONE
1.	Chairman, Board of Studies	Dr. T. Aravinda In-charge, Dept of Botany Nagarjuna Government college Nalgonda	Dept of Botany Nagarjuna Government college, Nalgonda
2.	University Nominee	Prof. S.K. Mahamood Dept of Botany Osmania University	Dept of Botany University College of Science Saifabad , Osmania University, Hyd
3.	Subject Experts	Prof.H. Ramakrishna Head, Dept of Botany Osmania University Prof. Nirmala Babu Rao Chairperson, Board of Studies, Dept of Botany Osmania University	Dept of Botany University College of Science Osmania University, Hyd Dept of Botany University College of Science Osmania University, Hyd
4.	Faculty members of Department	1. N. Siddulu 2. M. V. V. Satyaveni 3. A. Sandhya 4. N. Swapna (cont) 5. S. Shankar (cont) 6. G. Naveen Kumar (cont)	Dept of Botany Nagarjuana Government collge, Nalgonda


12/10/2017

In-Charge/Chairman BOS

DEPARTMENT OF BOTANY
Nagarjuna Govt. College,
NALGONDA.





Principal/Chairman Academic Council

NAGARJUNA GOVERNMENT COLLEGE (Autonomous), NALGONDA

Re accredited by NAAC with 'A' Grade
(Affiliated to Mahatma Gandhi University)

DEPARTMENT OF BOTANY
BOARD OF STUDIES MEETING - 2017-18


The Board of studies meeting of Botany Department is held on ^{12/10} - -2017 in the Department of Botany and formulated the following resolutions.

Agenda:

1. To consider and approve the syllabus of B. Sc I, II and III Year (I, II, III, IV, V, & VI semesters).
2. To conduct two internal assessments for 30 marks as twice in a semester (20 marks for written examination, 5 marks for assignment and 5 marks for student seminar) and semester end exam for 70 marks.
3. To consider and approve the new syllabus for the CBCS system for I & II year as per the Mahatma Gandhi University, Nalgonda.
4. To consider the syllabus prescribed by Mahatma Gandhi university, Nalgonda for Ability Enhancement Compulsory Course (AECC) and Skill Enhancement Course (SEC) for the semesters.
5. To consider and approve the model question papers for B. Sc I, II and III Year.
6. To consider and approve the list of Panel of examiners for paper setting and evaluation.
7. To consider and approve to conduct practical exams year wise for III year and semester wise for I & II year.
8. Any other related academic matters.

Resolutions:

1. It is resolved to approve the syllabus of B. Sc I, II and III Year (I, II, III, IV, V, & VI semesters).
2. It is resolved to approve each semester examination will be of 100 marks in total in which semester end exam is of 70 marks and internal assessment is of 30 marks (20 marks for written examination (best one out of two), 5 marks for student assignment and 5 marks for student seminar).
3. Approved the new syllabus for the CBCS system for I & II year as per the Mahatma Gandhi University, Nalgonda.
4. It is resolved to approve the syllabus of Mahatma Gandhi University, Nalgonda for the courses of AECC & SEC's.
5. Approved the model question papers for B. Sc I, II and III Year Courses.
6. Approved the list of Panel of examiners for paper setting and evaluation.
7. Approved to conduct practical exams year wise for III year and semester wise for I & II year Courses.


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NALGONDA
Professor & Head
Department of Botany
Osmania University
Hyderabad-500 007


Principal
Mahatma Gandhi University
College of Science
Saifabad, Hyderabad-500 004



Members Present:

1. Dr. T. Aravinda
Chairman, Board of Studies
Dept of Botany, Nagarjuna Government College, Nalgonda
2. Prof. S.K. Mahamood
University Nominee, Dept of Botany
University College of Science, Saifabad
Osmania University, Hyderabad
3. Prof. H. Rama Krishna
Head, Dept of Botany
Osmania University, Hyderabad
4. Prof. Nirmala Babu Rao
Chairperson, Board of Studies, Dept of Botany
Osmania University, Hyderabad

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14/10/17
Professor & Head
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HYDERABAD-500 007.

5. Members from the Department:

1. N. Siddulu
2. M.V.V. Satyaveni
3. A. Sandhya
4. R. Swapna (cont)
5. S. Shankar (cont)
6. G. Naveen Kumar (cont)

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DEPARTMENT OF BOTANY


BOARD OF STUDIES MEETING - 2017

Paper setters and Panel of examiners for the academic year 2017-18

S.No	Subject/ Paper	S.No	Name/Desigantion/Working address/mobile. No/email.ID	Residential Address
1.	I	1	P.SureshBabu, Asst. Prof of Botany GDC, Ibrahimpatnam. Mobile No:9440394036 Email ID:sureshbtm@gmail.com	H.No: 4-21, East part phase-II Chaitanya nagar, B.N Reddy Nagar,Hyderabad.
2		2	Dr. K. Srinivas Reddy Asst. Prof of Botany KRR GDC, kodad. Mobile No: 7396667598 Email ID:kotanivas@gmail.com	Flat No.205, A-block, K.S.Enclave, Bhavani Nagar, Kodad.PIN-508206
3		3	Dr. S. Anuradha, Asst. Prof of Botany GDC, Kamareddy, NZMBD. Mobile No:9985076989 EmailID:sanginenianu@rediffmail.com	TRT Quarters-192, Sithaphalmandi, Secunderabad 500039.
4	II	1	Ch. Ramaraju Asst. Prof of Botany KRR GDC, Kodad Mobile No: 8247688208 Email ID: praveenaramaraju@gmail.com	Flat No. 334 Sagar Housing Complex B. N. Reddy Nagar Vanasthalipuram PIN- 500070
5		2	Dr. K. Srinivas Reddy Asst. Prof of Botany KRR GDC, kodad. Mobile No:7396667598 Email ID: kotanivas@gmail.com	Flat No.205, A-block, K.S.Enclave, Bhavani Nagar, Kodad.PIN-508206
6		3	P.V. Lakshmi Narayana Asst. Prof of Botany KRR GDC, kodad. Mobile No:9948159047 Email ID:popupvln@gmail.com	Flat No-104, Sai srisadan Apartment, Behind bank of Maharashtra NallalaBhavi Road, Suryapet 508213


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7	III	1	D. Srihari Reddy Asst. Prof of Botany GDC, Ramannapet Mobile No: 9441564471 Email ID: devarrintisriharireddy5@gmail.com	Plot. No. 12 II Floor Near Nagarjuna School Street No. 1 Srinivasapuram, NGO's Colony Vanasthalipuram, Hyd-500070
8		2	Dr. S.Anuradha Asst. Prof of Botany GDC, Kamareddy, NZMBD. Mobile No: 9985076989 Email ID:sanginenianu@rediffmail.com	TRT Quarters-192, Sithaphalmandi, Secunderabad 500039.
9		3	P.SureshBabu , Asst. Prof of Botany GDC, Ibrahimpatnam. Mobile No: 9440394036 Email ID:sureshbtm@gmail.com	H.No: 4-21, East part phase-II Chaitanya nagar, B.N Reddy Nagar,Hyderabad.
10	IV	1	T. Shankarachary Principal Siddartha Degree College, Nalgonda Mobile No: 9959198191 Email ID:	H. No 6-7-187 Shivaji Nagar Nalgonda 508001
11		2	Dr. K. Srinivas Reddy Asst. Prof of Botany KRR GDC, kodad. Mobile No:7396667598 Email ID: kotanivas@gmail.com	Flat No-104, Sai srisadan Apartment, Behind bank of Maharashtra NallalaBhavi Road, Suryapet 508213
12		3	Ch. Ramaraju Asst. Prof of Botany KRR GDC, Kodad Mobile No: 8247688208 Email ID: praveenaramaraju@gmail.com	Flat No. 334 Sagar Housing Complex B. N. Reddy Nagar Vanasthalipuram PIN- 500070

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**B.Sc (CBCS) Botany- I year
Semester-I - Paper-I
Microbial Diversity of Lower Plants**

DSC - 1A (4 hrs./week)

Theory Syllabus

**Credits- 4
(60 hours)**

UNIT - I

1. Brief account of Archaeobacteria, Actinomycetes. (4h)
2. Cyanobacteria: General characters, cell structure, thallus organisation and their significance as biofertilizers with special reference to *Oscillatoria*, *Nostoc* and *Anabaena*. (6h)
3. Lichens: Structure and reproduction; ecological and economic importance. (5h)

UNIT- II

4. Viruses: Structure, replication and transmission; plant diseases caused by viruses and their control with reference to Tobacco Mosaic and Rice Tungro. (7h)
5. Bacteria: Structure, nutrition, reproduction and economic importance. An outline of plant diseases of important crop plants caused by bacteria and their control with reference to Angular leaf spot of cotton and Bacterial blight of Rice. (8h)
6. General account of Mycoplasma with reference to Little leaf of brinjal and Papaya leaf curl

UNIT-III


7. General characters, structure, reproduction and classification of algae (Fritsch) and thallus organization in algae. (3h)
8. Structure and reproduction of the following:
Chlorophyceae- *Volvox*, *Oedogonium* and *Chara*. (5h)
Phaeophyceae- *Ectocarpus* (2h)
Rhodophyceae- *Polysiphonia*. (3h)
9. Economic importance of algae in Agriculture and Industry. (2h)

UNIT-IV

10. General characters and classification of fungi (Ainsworth). (3h)
11. Structure and reproduction of the following:
(a) Mastigomycotina- *Albugo*
(b) Zygomycotina- *Mucor*
(c) Ascomycotina- *Saccharomyces* and *Penicillium*.
(d) Basidiomycotina- *Puccinia*
(e) Deuteromycotina- *Cercospora*. (10h)
12. Economic importance of fungi in relation to mycorrhizae and mushrooms. General account of mushroom cultivation (2h)


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References:

1. Alexopoulos, J. and W. M. Charles. 1988. Introduction to Mycology. Wiley Eastern, New Delhi.
2. Mckane, L. and K. Judy. 1996. Microbiology – Essentials and Applications. McGraw Hill, New York.
3. Pandey, B. P. 2001. College Botany, Vol. I: Algae, Fungi, Lichens, Bacteria, Viruses, Plant Pathology, Industrial Microbiology and Bryophyta. S. Chand & Company Ltd, New Delhi.
4. Pandey, B. P. 2007. Botany for Degree Students: Diversity of Microbes, Cryptogams, Cell Biology and Genetics. S. Chand & Company Ltd, New Delhi.
5. Sambamurthy, A. V. S. S. 2006. A Textbook of Plant Pathology. I. K. International Pvt. Ltd., New Delhi.
6. Sambamurthy, A. V. S. S. 2006. A Textbook of Algae. I. K. International Pvt. Ltd., New Delhi.
7. Sharma, O. P. 1992. Textbook of Thallophyta. McGraw Hill Publishing Co., New Delhi.
8. Thakur, A. K. and S. K. Bassi 2008. A Textbook of Botany: Diversity of Microbes and Cryptogams. S. Chand & Company Ltd, New Delhi.
9. Vashishta, B. R., A. K. Sinha and V. P. Singh. 2008. Botany for Degree Students: Algae. S. Chand & Company Ltd, New Delhi.
10. Vashishta, B. R. 1990. Botany for Degree Students: Fungi, S. Chand & Company Ltd, New Delhi.
11. Dutta A.C. 2016. Botany for Degree Students. Oxford University Press.


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NAGARJUNA GOVERNMENT COLLEGE (AUTONOMOUS) NALGONDA.

MODEL QUESTION PAPER

B. Sc I Yr, I Semester-End examination

BOTANY (Paper-I)

(Module: Diversity of Microbes, Algae & Fungi)

Time: 2 ½ Hrs.

Max Marks: 70

Instructions to the candidates: Draw neat labeled diagrams wherever necessary.

SECTION-A

(5 X 2 = 10)

Define or explain ALL of the following :

- 1.
- 2.
- 3.
- 4.
- 5.

SECTION-B

(Instructions to the question PAPER SETTER: Set at least ONE question from EACH UNIT of the given syllabus).

Write short answers for FOUR of the following:

(4 X 5 = 20)

- 6.
- 7.
- 8.
- 9.
- 10.
- 11.

SECTION-C

(Instructions to the question PAPER SETTER: Set TWO questions from EACH UNIT of the given syllabus).

Write detailed answers for ALL of the following:

(4 X 10 = 40)

UNIT - I

12. (a)

(OR)

(b)

UNIT - II

13. (a)

(OR)

(b)

UNIT - III

14. (a)

(OR)

(b)

UNIT - IV


15. (a)

(OR)

(b)


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B.Sc (CBCS) Botany-I year
Semester-I - Paper-I
Microbial Diversity of Lower Plants


Practical Syllabus

(45 hours)

1. Study of viruses and bacteria using electron micrographs (photographs). (3h)
2. Gram staining of Bacteria. (3h)
3. Study of symptoms of plant diseases caused by viruses, bacteria, Mycoplasma and fungi:
Viruses: Tobacco mosaic
✓ Bacteria: Angular leaf spot of cotton and Rice tungro.
✓ Mycoplasma: Little leaf of Brinjal and Leaf curl of papaya (3h)
Fungi: White rust on Crucifers, Rust on wheat & Tikka disease of Groundnut. (6h)
4. Vegetative and reproductive structures of the following taxa:
Algae: *Oscillatoria, Nostoc, Volvox, Oedogonium, Chara, Ectocarpus*
and *Polysiphonia*. (6 h)
Fungi: *Albugo, Mucor, Saccharomyces, Penicillium, Puccinia* and *Cercospora* (6h)
5. Section cutting of diseased material infected by Fungi and identification of pathogens as per theory syllabus. White rust of Crucifers, Rust on wheat & Tikka disease of Groundnut. (9h)
6. Lichens: Different types of thalli and their external morphology (3 h).
7. Examination of important microbial, fungal and algal products:
✓ Biofertilizers, protein capsules, antibiotics, mushrooms, Agar-agar etc. (3h)
8. Field visits to places of algal / microbial / fungal interest (e.g. Mushroom cultivation, water bodies). (3h)


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(AUTONOMOUS, RE-ACCREDITED BY NAAC WITH "A" GRADE)

**B. Sc(CBCS) Botany- I year
Semester-I - Paper-I
Microbial Diversity of Lower Plants
Practical Model Paper**


Time : 2 1/2 hrs

Max. Marks: 50

1. Identify the given components 'A', 'B' & 'C' in the algal mixture .
Describe with neat labeled diagrams & give reasons for the identifications. **3 X 6 = 18M**
2. Classify the given bacterial culture 'D' using Gram – staining technique. **8 M**
3. Take a thin transverse section of given diseased material 'E'.
Identify & describe the symptoms caused by the pathogen. **10 M**
4. Identify the given specimens 'F', 'G' & 'H' by giving reasons.
(Fungal-1, Bacteria-1 & Viral-1) **3 X 2 = 6M**
5. Comment on the given slides 'I' & 'J'.
(Algae-1, Fungi-1) **2 X 2 = 4 M**
6. Record **4 M**


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U.G. I year Semester-I - (B.Sc/B.A./B.Com) CBCS

Environmental Studies

AECC-2 (2 hrs./week)

Credits – 2

(30 hours)

UNIT - I : Ecosystem, Biodiversity & Natural Resources

(15 hrs.)

1. Definition, Scope & Importance of Environmental Studies.
2. Structure of Ecosystem – Abiotic & Biotic components Producers, Consumers, Decomposers, Food chains, Food webs, Ecological pyramids)
3. Function of an Ecosystem :Energy flow in the Ecosystem (Single channel energy flow model)
4. Definition of Biodiversity , Genetic,Species & Ecosystem diversity , Hot-spots of Biodiversity, Threats to Biodiversity , Conservation of Biodiversity (Insitu & Exsitu)
5. Renewable & Non – renewable resources, Brief account of Forest , Mineral & Energy (Solar Energy & Geothermal Energy) resources
6. Water Conservation , Rain water harvesting & Watershed management.

UNIT – II: Environmental Pollution , Global Issues & Legislation

(15 hrs.)

1. Causes, Effects & Control measures of Air Pollution, Water Pollution
2. Solid Waste Management
3. Global Warming & Ozone layer depletion.
4. Ill – effects of Fire- works
5. Disaster management – floods, earthquakes & cyclones
6. Environmental legislation :-
(a) Wild life Protection Act (b) Forest Act (c) Water Act (d) Air Act
7. Human Rights
8. Women and Child welfare
9. Role of Information technology in environment and human health

❖ Field Study:

(5 hours)

- Pond Ecosystem
- Forest Ecosystem

REFERENCES:

- Environmental Studies - from crisis to cure – by R. Rajagopalan (Third edition) Oxford University Press.
- Text book of Environmental Studies for undergraduate courses (second edition) by Erach Bharucha
- A text book of Environmental Studies by Dr.D.K.Asthana and Dr. Meera Asthana

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MAHATMA GANDHI UNIVERSITY
MODEL QUESTION PAPER FOR SEMESTER EXAMINATION (END) for AECC/SEC PAPERS
w.e.f. 2016-2017 Academic Year
CBCS pattern (For All Semesters)

Credits – 2

TIME: 2 HOURS

MAX MARKS: 40

SECTION-A

Answer the following in short:

4x5=20 marks

- 1
- 2
- 3
- 4

SECTION-B

Answer the following essays:

2x10=20 marks

- 1 (a)
- (b)
- 2 (a)
- (b)

OR

OR

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B.Sc (CBCS) Botany- I year
Semester-II - Paper-II
Bryophytes, Pteridophytes, Gymnosperms and Paleobotany

DSC-1B (4 hrs./week)

Theory Syllabus

Credits- 4
(60 hours)

UNIT-I

1. Bryophytes: General characters and classification. (3h)
2. Structure, reproduction, life cycle and systematic position of *Marchantia*, *Anthoceros* and *Polytrichum*. (Development stages are not required). (10h)
3. Evolution of Sporophyte in Bryophytes. (2h)

UNIT-II

4. Pteridophytes: General characters and classification (Sporne's) (3h)
5. Structure, reproduction, life cycle and systematic position of *Rhynia*, *Lycopodium*, *Equisetum* and *Marsilea*. (10h)
6. Stelar evolution, heterospory and seed habit in Pteridophytes. (2h)

UNIT-III


7. Gymnosperms: General characters, structure, reproduction and classification (Sporne's). (4h)
8. Distribution and economic importance of Gymnosperms. (3h)
9. Morphology of vegetative and reproductive parts, systematic position and life cycle of *Pinus* and *Gnetum*. (8 h)

UNIT-IV.

10. Palaeobotany: Introduction, Fossils and fossilization ; Importance of fossils. (8 h)
11. Geological time scale; (4 h)
12. Bennettitales: General account. (3 h)


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References:

1. Watson, E. V. 1974. The structure and life of Bryophytes, B. I. Publications, New Delhi.
2. Pandey, B. P. 2006. College Botany, Vol. II: Pteridophyta, Gymnosperms and Paleobotany. S. Chand & Company Ltd, New Delhi.
3. Sporne, K. R. 1965. Morphology of Gymnosperms. Hutchinson Co., Ltd., London.
4. Vashishta, P. C., A. K. Sinha and Anil Kumar. 2006. Botany - Pteridophyta (Vascular Cryptogams). S. Chand & Company Ltd, New Delhi.
5. Pandey, B. P. 2001. College Botany, Vol. I: Algae, Fungi, Lichens, Bacteria, Viruses, Plant Pathology, Industrial Microbiology and Bryophyta. S. Chand & Company Ltd, New Delhi.
6. Pandey, B. P. 2007. Botany for Degree Students: Diversity of Microbes, Cryptogams, Cell Biology and Genetics. S. Chand & Company Ltd, New Delhi.
7. Thakur, A. K. and S. K. Bassi. 2008. A Textbook of Botany: Diversity of Microbes and Cryptogams. S. Chand & Company Ltd, New Delhi.
8. Vashishta, B. R., A. K. Sinha and Adarsha Kumar. 2008. Botany for Degree Students: Bryophyta. S. Chand & Company Ltd, New Delhi.
9. Vashishta, P. C., A. K. Sinha and Anil Kumar. 2006. Botany for Degree Students: Gymnosperms. Chand & Company Ltd, New Delhi.
10. Dutta A.C. 2016. Botany for Degree Students. Oxford University Press.


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NAGARJUNA GOVERNMENT COLLEGE (AUTONOMOUS) NALGONDA.

MODEL QUESTION PAPER

B. Sc I Yr, II Semester-End examination

BOTANY (Paper-II)

(Module: Bryophyta, Pteridophyta, Gymnosperms & Palaeobotany)

Time: 2 ½ Hrs.

Max Marks: 70

Instructions to the candidates: Draw neat labeled diagrams wherever necessary.

SECTION-A

(5 X 2 = 10)

Define or explain ALL of the following :

- 1.
- 2.
- 3.
- 4.
- 5.

SECTION-B

(Instructions to the question PAPER SETTER: Set at least ONE question from EACH UNIT of the given syllabus).

Write short answers for FOUR of the following:

(4 X 5 = 20)

- 6.
- 7.
- 8.
- 9.
- 10.
- 11.

SECTION-C

(Instructions to the question PAPER SETTER: Set TWO questions from EACH UNIT of the given syllabus).

Write detailed answers for ALL of the following:

(4 X 10 = 40)

UNIT - I

12. (a)

(OR)

(b)

UNIT - II

13. (a)

(OR)

(b)

UNIT - III

14. (a)

(OR)

(b)

UNIT - IV


15. (a)

(OR)

(b)


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B.Sc (CBCS) Botany- I year
Semester-II - Paper-II
Bryophytes, Pteridophytes, Gymnosperms and Paleobotany


(45 hours)

Practical Syllabus – 2016

1. Study of Morphology (vegetative and reproductive structures) and anatomy of the following
Bryophytes: *Marchantia*, *Anthoceros* and *Polytrichum*. (9 h)
2. Study of Morphology (vegetative and reproductive structures) and anatomy of the following
Pteridophytes: *Lycopodium*, *Equisetum* and *Marsilea*. (9 h)
3. Study of Anatomical features of *Lycopodium* stem, *Equisetum* stem and *Marsilea* petiole &
rhizome by preparing double stained permanent mounts. (12h)
4. Study of Morphology (vegetative and reproductive structures) of the following taxa:
Gymnosperms: *Pinus* and *Gnetum*. (6 h)
5. Study of Anatomical features of *Pinus* needle and *Gnetum* stem by preparing double stained
permanent mounts. (6h)
6. Fossil forms using permanent slides / photographs: *Rhynia* and *Cycadeoidea*. (3h)


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(AUTONOMOUS, RE-ACCREDITED BY NAAC WITH "A" GRADE)


B. Sc(CBCS) Botany- I year
Semester-II - Paper-II

Bryophytes, Pteridophytes, Gymnosperms and Paleobotany
Practical Model Paper


Time: 2 1/2 hrs

Max. Marks: 50

1. Prepare a double stained permanent mount of the given material 'A' (Pteridophyte)
Draw diagram & give reasons for identification. 14M
2. Prepare a double stained permanent mount of the given material 'B' (Gymnosperms)
Draw diagram & give reasons for identification. 16M
3. Identify the given specimens C, D, E & F (Bryophyte – 2, Pteridophyte – 1 &
Gymnosperm – 1) 4 X 2 =8M
4. Identify the given slides G, H, I & J (Bryophyte – 2, Pteridophyte – 1
& Gymnosperm – 1) 4 X 2 =8M
5. Record 4M


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MAHATMA GANDHI UNIVERSITY
NALGONDA
CHOICE BASED CREDIT SYSTEM (CBCS)
(With Effect from Academic Year 2016 -17)

U.G. I year Semester-II - (B.Sc/B.A./B.Com)

Gender Sensitization

AECC-2 – Total 2 Credits

UNIT – I (Theory) – 1 Credit– 1 Hour of Instruction per Week

1. Gender : Definition, Nature and Evolution, Culture, Tradition, Historicity.
2. Gender Spectrum: Biological, Sociological, Psychological Conditioning.
3. Gender based division of labour-domestic work and use value.
4. Gender, Human Rights and Parity (parallel progress of both genders).


UNIT – II (Practical Activity) 1 Credit – 2 Hours of Activity per Week


Group discussion, Presentation, Role play, Survey, Case studies, Group project based on following issues:

- Respect and Co-existence
- Social, Biological, Psychological, Political, Economic, Cultural, Health Issues.
- Domestic Violence, Eve-Teasing, Sexual Harassment.
- Real Life Experience of Gender Interaction.
- Print and Electronic Media and Gender Inequalities.
- Contemporary Challenges.

Book: "Towards a World of Equals: A Bilingual Textbook on Gender" published by Telugu Akademi


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B.Sc (CBCS) BOTANY- II YEAR
Semester-III - Paper-III
Taxonomy of Angiosperms and Medicinal Botany

DSC-1C (4 hrs./week)

Theory syllabus

Credits-4
(60 hours)

UNIT - I

1. Introduction: Principles of plant systematics, Types of classification: Artificial, Natural and Phylogenetic; Systems of classification: Salient features and comparative account of Bentham & Hooker and Engler & Prantle. An introduction to Angiosperm Phylogeny Group (APG). (7h)
- 2.. Current concepts in Angiosperm Taxonomy: Embryology in relation to taxonomy, Cytotaxonomy, Chemotaxonomy and Numerical Taxonomy. (4 h)
- 3.. Nomenclature and Taxonomic resources: An introduction to ICBN, Vienna code - a brief account. Herbarium: Concept, techniques and applications. (4 h)

UNIT-II


- 4.. Systematic study and economic importance of plants belonging to the following families:
Polypetalae : Annonaceae, Capparidaceae, Rutaceae, Fabaceae (Faboideae/papilionoideae, Caesalpinioideae, Mimosoideae), Cucurbitaceae
5. Gamopetalae: Apiaceae, Asteraceae, Asclepiadaceae, Lamiaceae
6. Monochalmydeae: Amaranthaceae, Euphorbiaceae, Monocotyledons: Orchidaceae and Poaceae. (15h)

UNIT - III


- 7.. Ethnomedicine: Scope, interdisciplinary nature, distinction of Ethnomedicine from Folklore medicine. (3h)
8. Outlines of Ayurveda, Sidda, Unani and Homeopathic systems of traditional medicine. Role of AYUSH, NMPB, CIMAP and CDRI. (5 h)
- 9.. Plants in primary health care: Common medicinal plants – Tippateega (*Tinospora cordifolia*), tulasi (*Ocimum sanctum*), pippallu (*Piper longum*), Karakaya (*Terminalia chebula*), Kalabanda (*Aloe vera*), Turmeric (*Curcuma longa*). Evaluation of crude drugs. (7h)

UNIT-IV

10. Traditional medicine vs Modern medicine: Study of selected plant examples used in traditional medicine as resource (active principles, structure, usage and pharmacological action of modern medicine: Aswagandha (*Withania somnifera*), Sarpagandha (*Rauwolfia serpentina*), Nela usiri (*Phyllanthus amarus*), Amla (*Phyllanthus emblica*) and Brahmi (*Bacopa monnieri*). (8h)
11. Pharmacognosy: Introduction and scope. Adulteration of plant crude drugs and methods of identification - some examples. Indian Pharmacopoeia. (4h)
12. Plant crude drugs: Types, methods of collection, processing and storage practices. (3h)



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- Rastogi, R. R. and B. N. Mehrotra. 1993. Compendium of Indian Medicinal Plants. Vol. I & Vol. II. CSIR, Publication and Information Directorate, New Delhi.
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- Singh, G. 1999. Plant Systematics: Theory and Practice. Oxford and IBH, New Delhi.
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- Heywood, V. H. 1965. Plant Taxonomy. ELBS, London.
- Heywood, V. H. and D. M. Moore (Eds). 1984. Current Concepts in Plant Taxonomy. Academic Press, London.
- Jain, S. K. and V. Mudgal. 1999. A Handbook of Ethnobotany. Bishen Singh Mahendra Pal Singh, Dehradun.
- Jeffrey, C. 1982. An Introduction to Plant Taxonomy. Cambridge University Press, Cambridge. London.
- Joshi, S. G. 2000. Medicinal Plants. Oxford and IBH, New Delhi.
- Kokate, C. and Gokeale- Pharmacognacy- Nirali Prakashan, New Delhi.
- Lad, V. 1984. Ayurveda – The Science of Self-healing. Motilal Banarasisdass, New Delhi.
- Lewis, W. H. and M. P. F. Elwin Lewis. 1976. Medical Botany. Plants Affecting Man's Health. A Wiley Inter science Publication. John Wiley and Sons, New York.


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NAGARJUNA GOVERNMENT COLLEGE (AUTONOMOUS) NALGONDA.

MODEL QUESTION PAPER

B. Sc II Yr, III Semester-End examination

BOTANY (Paper-III)

(Taxonomy of Angiosperms and Medicinal Botany)

Time: 2 ½ Hrs.

Max Marks: 70

Instructions to the candidates: Draw neat labeled diagrams wherever necessary.

SECTION-A

(5 X 2 = 10)

Define or explain ALL of the following :

- 1.
- 2.
- 3.
- 4.
- 5.

SECTION-B

(Instructions to the question PAPER SETTER: Set at least ONE question from EACH UNIT of the given syllabus).

Write short answers for FOUR of the following:

(4 X 5 = 20)

- 6.
- 7.
- 8.
- 9.
- 10.
- 11.

SECTION-C

(Instructions to the question PAPER SETTER: Set TWO questions from EACH UNIT of the given syllabus).

Write detailed answers for ALL of the following:

(4 X 10 = 40)

UNIT - I

12. (a)

(OR)

(b)

UNIT - II

13. (a)

(OR)

(b)

UNIT - III

14. (a)

(OR)

(b)

UNIT - IV

15. (a)

(OR)

(b)

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B.Sc (CBCS) BOTANY- II YEAR
Semester-III - Paper-III
Taxonomy of Angiosperms and Medicinal Botany


Practical syllabus

(45 hours)

1. Systematic study of locally available plants belonging to the families prescribed in theory syllabus
(Minimum of one plant representative for each family) (24h)
2. Demonstration of herbarium techniques. (3 h)
3. Identification, medicinal value & active principle present in the following plants : Tulasi (*Ocimum sanctum*), Karakaya (*Terminalia chebula*), Kalabanda (*Aloe vera*). (6 h)
4. Ethnomedicinal value/practice of the following plants :
Aswagandha (*Withania somnifera*), Sarpagandha (*Rauwolfia serpentina*), Amla (*Phyllanthus emblica*) and
Brahmi (*Bacopa monnieri*). (6h)
5. Pharmacognosy:
Powder analysis : Pippalu (*Piper longam*), Nela usiri (*Phyllanthus niruri*),
Study of Organoleptic (sectional study) of the following:
Tippateega (*Tinospora cordifolia*) and Turmeric (*Curcuma longa*). (6h)
6. Candidate have to submit at least 30 herbarium sheets


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**B. Sc(CBCS) Botany- II year
Semester-III - Paper-III
Taxonomy of Angiosperms and Medicinal Botany
Practical Model Paper**


Time : 2 1/2 hrs

Max. Marks: 50

- | | |
|---|-----|
| 1. Technical description of the given plant twig 'A' | 18M |
| 2. Identify the given material 'B' & write its medicinal properties | 6M |
| 3. Identify the specimen 'C' & write organoleptic evaluation | 6M |
| 4. Identify the given material 'D' & discuss the ethno medicinal value of it. | 6M |
| 5. Identify the given material 'E' Write the active principle and uses | 6M |
| 6. Herbarium | 4M |
| 7. Record | 4M |


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III Semester Skill Enhancement Courses

Mathematics Stream:

Computation using Excel / Basic Analytical Chemistry

Bio-Sciences Stream:

Medical Diagnostics / Basic Analytical Chemistry

Arts Stream:


Historical & Cultural Tourism in India / Rural Development

Commerce Stream:

Principles of Insurance


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Medical Diagnostics

2 Credits

Unit I: Introduction to medical diagnostics, Diagnostic methods for analysis of blood and urine

- 1.1 Introduction to medical diagnostics and its importance
- 1.2 Blood composition, Leishman's staining, Platelet count using haemocytometer, Erythrocyte sedimentary Rate (ESR) ,packed cell volume(P.C.V)
- 1.3 Urine analysis Physical characteristics, abnormal constituents.

Unit II: Non-infection , Infection diseases & Tumours


- 1.1 Non-infection diseases –causes, types, symptoms, complications, diagnosis and prevention of diabetes (type-I&II), Hypertension (Primary &secondary), testing of blood glucose using glucometer/ kit.
- 1.2 Infectious diseases- causes, types, symptoms complication, diagnosis and prevention of tuberculosis and hepatitis.
- 1.3 Tumours – Types (Benign) Malignant) , detection & metastasis.

Suggested Readings:

1. Prakash, G.(2012). Lab Manual on Blood analysis and Medical Diagnostics. S. Chand and Co. Ltd., New Delhi.


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B.SC (CBCS) BOTANY- II YEAR
Semester-IV- Paper IV
Plant Anatomy, Embryology and Palynology

DSC-1D (4 hrs./week) Theory syllabus Credits-4
(60 hours)

UNIT - I:

1. Meristems: Types, histological organization of shoot and root apices and theories. (3h)
2. Tissues and Tissue Systems: Simple, complex and special tissues. (6 h)
3. Leaf: Ontogeny, diversity of internal structure; stomata and epidermal outgrowths. (6 h)

UNIT-II

4. Stem and root anatomy: Vascular cambium - Formation and function. (3h)
5. Anomalous secondary growth of Stem - *Achyranthes*, *Boerhaavia*, *Bignonia*, *Dracaena*;
Root- *Beta vulgaris* (5h)
6. Wood structure: General account. Study of local timbers – Teak (*Tectona grandis*),
Rosewood, (*Dalbergia latifolia*), Red sanders, (*Pterocarpus santalinus*) Nallamaddi
(*Terminalia tomentosa*) and Neem (*Azadirachta indica*). (7h)

UNIT - III

7. Introduction: History and importance of Embryology. (2h)
8. Anther structure, Microsporogenesis and development of male gametophyte. (6h)
9. Ovule structure and types; Megasporogenesis; types and development of female gametophyte. (7h)

UNIT-IV

10. Pollination - Types; Pollen - pistil interaction. Fertilization. (4h)
11. Endosperm - Development and types. Embryo - development and types; Polyembryony
and Apomixis - an outline. (5h)
- 12.. Palynology- Pollen morphology, NPC system and application of Palynology. (6h)

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References:

Bhattacharya et. al. 2007. A textbook of Palynology, Central, New Delhi.

Bhojwani, S. S. and S. P. Bhatnagar. 2000. The Embryology of Angiosperms (4th Ed.), Vikas Publishing House, Delhi.

M.R.Saxena- A textbook of Palynology.

Vashista- A textbook of Anatomy.

P.K.K.Nair- A textbook of Palynology.


Esau, K. 1971. Anatomy of Seed Plants. John Wiley and Son, USA.

Johri, B. M. 1984. Embryology of Angiosperms. Springer-Verlag, Berlin.


Kapil, R. P. 1986. Pollination Biology. Inter India Publishers, New Delhi.

Maheswari, P. 1971. An Introduction to Embryology of Angiosperms. McGraw Hill Book Co., London.

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NAGARJUNA GOVERNMENT COLLEGE (AUTONOMOUS) NALGONDA.

MODEL QUESTION PAPER

B. Sc II Yr, IV Semester-End examination

BOTANY (Paper-IV)

(Plant Anatomy, Embryology and Palynology)

Time: 2 ½ Hrs.

Max Marks: 70

Instructions to the candidates: Draw neat labeled diagrams wherever necessary.

SECTION-A

(5 X 2 = 10)

Define or explain ALL of the following :

- 1.
- 2.
- 3.
- 4.
- 5.

SECTION-B

(Instructions to the question PAPER SETTER: Set at least ONE question from EACH UNIT of the given syllabus).

Write short answers for FOUR of the following:

(4 X 5 = 20)

- 6.
- 7.
- 8.
- 9.
- 10.
- 11.

SECTION-C

(Instructions to the question PAPER SETTER: Set TWO questions from EACH UNIT of the given syllabus).

Write detailed answers for ALL of the following:

(4 X 10 = 40)

UNIT - I

12. (a)

(OR)

(b)

UNIT - II

13. (a)

(OR)

(b)

UNIT - III

14. (a)

(OR)

(b)


UNIT - IV

15. (a)

(OR)

(b)


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B.SC (CBCS) BOTANY- II YEAR
Semester-IV- Paper IV
Plant Anatomy, Embryology and Palynology


Practical syllabus


(45 hours)

Suggested Laboratory Exercises:

1. Demonstration of double staining technique. (3 h)
2. Tissue organization in root and shoot apices using permanent slides (3 h)
3. Preparation of double stained Permanent slides
Primary structure: Root - *Cicer, Cannia*; Stem - *Tridax, Sorghum* (6 h)
Secondary structure: Root - *Tridax* sp.; Stem - *Pongamia*
Anomalous secondary structure: Examples as given in theory syllabus. (6 h)
4. Stomatal types using epidermal peels. (3 h)
5. Microscopic study of wood in T.S., T.L.S. and R.L.S. (6 h)
6. Structure of anther and microsporogenesis using permanent slides. (3 h)
7. Structure of pollen grains using whole mounts - *Hibiscus, Acacia* and Grass). (3 h)
8. Pollen viability test using Evans Blue - *Hibiscus* (3 h)
9. Study of ovule types and developmental stages of embryosac. (3 h)
10. Structure of endosperm (nuclear and cellular); Developmental stages of dicot and monocot embryos using permanent slides. (3 h)
11. Isolation and mounting of embryo (using *Cymopsis / Senna / Crotalaria*) (3 h)


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B. Sc(CBCS) Botany- II year
Semester-IV - Paper-IV
Taxonomy of Angiosperms and Medicinal Botany
Practical Model Paper


Time : 2 1/2 hrs

Max. Marks: 50

1. Prepare a double stained permanent mount of transverse section of given material 'A' 18M
2. Prepare a temporary mount of epidermal peel of the given leaf material " B " and identify the stomatal type . 8M
3. Conduct the pollen viability test " C " (OR) Isolate the embryo from the given material 8M
4. Identify and describe the specimens / slides with well labelled diagrams (a) Embryology – D (b) Palynology – E (c) Anatomy – F 3 X 4 = 12M
5. Record 4M


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B.Sc III Year V SEMESTER SYLLABUS (2017-18)

Subject: Botany

Name of the Module: Cell Biology and Genetics

Nature of the Module: Core

Mode of the Learning: Regular

UNIT – I

CELL BIOLOGY:

1. **Plant cell envelops:** Ultra structure of cell wall, molecular organization of cell membranes.
2. **Nucleus:** Ultra structure, nucleic acids, structure and replication of DNA, types and functions of RNA.

UNIT – II

3. **Chromosomes:** Morphology, organization of DNA in a chromosome, euchromatin and heterochromatin, Karyotype.
4. **Special types of Chromosomes:** Lampbrush, Polytene and B-Chromosomes.
5. **Cell division:** cell cycle and its regulation; mitosis, meiosis and their significance.

UNIT – III

GENETICS:


6. **Mendelism:** Laws of inheritance, genetic interactions – Epistasis, complementary, supplementary and inhibitory genes.
7. **Linkage and crossing over:** A brief account, construction of genetic maps-2 point and 3 point test cross data.

UNIT – IV

8. **Mutations:** Chromosomal aberrations-structural and numerical changes; Gene mutations.
9. **Gene Expression:** Organization of gene, transcription, translation, mechanism and regulation of gene expression in prokaryotes (Lac-operon and Trp-operons).
10. **Extra nuclear genome:** Mitochondrial and plastid DNA, plasmids.


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NAGARJUNA GOVERNMENT COLLEGE (AUTONOMOUS) NALGONDA.

MODEL QUESTION PAPER

B. Sc III Yr, VI Semester-End examination

BOTANY (Paper-V)

(Cell biology and Genetics)

Time: 2 ½ Hrs.

Max Marks: 70

Instructions to the candidates: Draw neat labeled diagrams wherever necessary.

SECTION-A

(5 X 2 = 10)

Define or explain ALL of the following :

1. z-DNA
2. Karyotype
3. Nucleolar Organizer Region
4. Test cross
5. Cp-DNA

SECTION-B

(Instructions to the question PAPER SETTER: Set at least ONE question from EACH UNIT of the given syllabus).

Write short answers for FOUR of the following:

(4 X 5 = 20)

6. Fluid mosaic model
7. Eucromatin & Heterochromatin
8. m-RNA
9. Two point test cross
10. Gene mutations
11. Transcription

SECTION-C

(Instructions to the question PAPER SETTER: Set TWO questions from EACH UNIT of the given syllabus).

Write detailed answers for ALL of the following:

(4 X 10 = 40)

UNIT - I

12. (a) Describe the cell wall structure

(OR)

- (b) Explain structure and replication of DNA

UNIT - II

13. (a) Describe the special types of chromosomes

(OR)

- (b) Write about Mitosis and its significance

UNIT - III

14. (a) Describe gene interactions and write any four types of interactions

(OR)

- (b) Explain the mechanism of Linkage and its significance

UNIT - IV


15. (a) Write an essay on chromosomal mutations

(OR)

- (b) Describe the mechanism of Lac operon in prokaryotes


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B.Sc III Year V SEMESTER SYLLABUS (2017-18)

Subject: Botany

Name of the Module: Tissue culture, Biotechnology, Seed Technology and Horticulture

Nature of the Module: Elective-I

Mode of the Learning: Regular

UNIT – I

Tissue Culture & Biotechnology

1. **Tissue Culture:** Introduction, sterilization procedures, culture media composition and preparation; explants.
2. **Callus Cultures:** Cell and protoplast culture, somatic hybrids and cybrids.
3. **Applications of Tissue Culture:** Production of pathogen free plants and somaclonal variants, production of stress resistance plants, secondary metabolites and synthetic seeds.

UNIT – II

4. **Biotechnology:** Introduction, history and scope.
5. **r DNA Technology:** Vectors and gene cloning and transgenic plants.

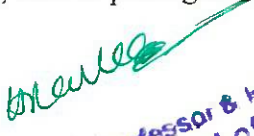
UNIT – III

Seed Technology and Horticulture

6. **Seed:** Structure and types. Seed dormancy, causes and methods of breaking dormancy.
7. **Seed Storage:** Seed banks, factors affecting seed viability, genetic erosion, seed production technology; seed testing and certification.
8. **Horticulture Technology:** Introduction, cultivation of ornamental and vegetable crops, Bonsai and landscaping.

UNIT – IV

9. **Floriculture:** Introduction. Importance of green house, polyhouse, mist chamber, shade nets; Micro irrigation systems. Floriculture potential and its trade in India
10. **Vegetative propagation of plants:** Stem, root and leaf cutting. Layering and Bud grafting, role of plant growth regulators in horticulture.


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NAGARJUNA GOVERNMENT COLLEGE (AUTONOMOUS) NALGONDA.

MODEL QUESTION PAPER

B. Sc III Yr, V Semester-End examination

BOTANY (Paper-VI)

(Tissue culture, Biotechnology, Seed Technology and Horticulture)

Time: 2 ½ Hrs.

Max Marks: 70

Instructions to the candidates: Draw neat labeled diagrams wherever necessary.

SECTION-A

(5 X 2 = 10)

Define or explain ALL of the following :

1. Explant
2. PEG (Poly Ehylene Glycol)
3. Plasmid
4. Seed Bank
5. Layering

SECTION-B

(Instructions to the question PAPER SETTER: Set at least ONE question from EACH UNIT of the given syllabus).

Write short answers for FOUR of the following:

(4 X 5 = 20)

6. Single cell culture
7. Transgenic plants
8. Genetic Erosion
9. Landscaping
10. Poly house
11. Seed certification

SECTION-C

(Instructions to the question PAPER SETTER: Set TWO questions from EACH UNIT of the given syllabus).

Write detailed answers for ALL of the following:

(4 X 10 = 40)

UNIT - I

12. (a) Write an essay on protoplast culture

(OR)

- (b) Write in detail about the various applications of plant tissue culture technology

UNIT - II

13. (a) Write in detail about agricultural, medicinal and industrial biotechnology

(OR)

- (b) Write an essay on r-DNA technology

UNIT - III

14. (a) Describe in detail about the reasons for seed dormancy & methods used to break dormancy

(OR)

- (b) Write an essay on the cultivation of vegetable crops

UNIT - IV

15. (a) Describe the different types of micro irrigation systems & their utility

(OR)

- (b) Describe in detail about the various types of cuttings employed in vegetative propagation

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NAGARJUNA GOVERNMENT COLLEGE, NALGONDA

(AUTONOMOUS, RE-ACCREDITED BY NAAC WITH "A" GRADE)

B.Sc III Year VI SEMESTER SYLLABUS (2017-18)

Subject: **Botany**

Name of the Module: **Ecology, Biodiversity and Conservation**

Nature of the Module: **Core**

Mode of the Learning: **Regular**

UNIT – I

Ecology:

1. **Ecosystem:** Concept and components of ecosystem, energy flow, food chains, food webs, ecological pyramids, biogeochemical cycles- Carbon, Nitrogen and Phosphorus.
2. **Plants and Environment:** Ecological factors – climatic (light and temperature}, edaphic and biotic, ecological adaptations of plants.
3. **Population Ecology:** Natality, Mortality, Growth curves, ecotypes, ecads.

UNIT – II

4. **Community Ecology:** Frequency, density, cover, life forms, biological spectrum, ecological succession (Hydrosere, Xerosere).
5. **Production Ecology:** Concepts of productivity, GPP, NPP, CR (Community respiration) and secondary production, P/R ratio and ecosystems.

UNIT – III


Biodiversity and Conservation:

6. **Biodiversity:** Concepts, convention on biodiversity – Earth summit. Types of biodiversity.
7. Levels, threats and value of biodiversity.
8. **Hot spots of India** – Endemism, North Eastern Himalayas, Western Ghats.

UNIT – IV

9. **Agro-biodiversity:** Vavilov centers of crop plants.
10. Principles of conservation: IUCN threat-categories, RED data book - threatened & endangered plants of India. Role of organizations in the conservation of Biodiversity - IUCN, UNEP, WWF, NBPGR. .


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NAGARJUNA GOVERNMENT COLLEGE (AUTONOMOUS) NALGONDA.

MODEL QUESTION PAPER

B. Sc III Yr, VI Semester-End examination

BOTANY (Paper-VI)

(Ecology, Biodiversity & Conservation)

Time: 2 ½ Hrs.

Max Marks: 70

Instructions to the candidates: Draw neat labeled diagrams wherever necessary.

SECTION-A

(5 X 2 = 10)

Define or explain ALL of the following :

1. Food web
2. Mortality
3. GPP
4. Endemism
5. RED data book

SECTION-B

(Instructions to the question PAPER SETTER: Set at least ONE question from EACH UNIT of the given syllabus).

Write short answers for FOUR of the following:

(4 X 5 = 20)

6. Food chain
7. P/R ratio
8. Biological spectrum
9. Earth summit
10. Types of Biodiversity
11. WWF

SECTION-C

(Instructions to the question PAPER SETTER: Set TWO questions from EACH UNIT of the given syllabus).

Write detailed answers for ALL of the following:

(4 X 10 = 40)

UNIT - I

12. (a) Describe the various kinds of Ecological pyramids

(OR)

- (b) Write an essay about Biogeochemical cycle

UNIT - II

13. (a) Describe the ecological succession of Hydrochere

(OR)

- (b) Explain the Raunkier life forms

UNIT - III

14. (a) Describe the Biodiversity and levels, threats, and value of bio diversity

(OR)


- (b) Write a note on Hot spots of India


UNIT - IV


15. (a) Describe the vavilov centers of crop plants

(OR)

- (b) Role of organization in the conservation of Biodiversity IUCN, UNEP, NBPGR


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B.Sc III Year VI SEMESTER SYLLABUS (2017-18)

Subject: **Botany**

Name of the Module: **Plant Physiology**

Nature of the Module: **Elective-I**

Mode of the Learning: **Regular**

UNIT – I

1. **Water Relations:** Importance of water to plant life, physical properties of water diffusion, imbibition, osmosis, water, osmotic and pressure potentials, absorption, and transport of water, ascent of sap; transpiration; Stomatal structure and movements..
2. **Mineral Nutrition:** Essential macro and micro mineral nutrients and their role; symptoms of mineral deficiency; absorption of mineral ions; passive and active processes.
3. **Enzymes:** Nomenclature, characteristics, mechanism and regulation of enzyme action, enzyme kinetics, factors regulating enzyme action.

UNIT – II


4. **Photosynthesis:** Photosynthesis pigments, absorption and action spectra; Red drop and Emerson enhancement effect; concept of two photosystems; mechanism of photosynthetic electron transport and evolution of oxygen; photophosphorylation; Carbon assimilation pathways; C3, C4 and CAM; photorespiration.
5. **Translocation of organic substances:** Mechanism of phloem transport; source-sink relationships.

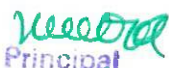
UNIT – III


6. **Respiration:** Aerobic and Anaerobic; Glycolysis, Krebs cycle; electron transport system, mechanism of oxidative phosphorylation, pentose phosphate pathway.
7. **Nitrogen Metabolism:** Biological nitrogen fixation, nitrate reduction, ammonia assimilation, amino acid synthesis and protein synthesis.

UNIT – IV

8. **Growth and Development:** Definition, phases and kinetics of growth, physiological effects of phytochromes- auxins, gibberellins, cytokinins, ABA, ethylene and brassinosteroids.
9. Physiology of flowering and photoperiodism, role of phytochromes in flowering.


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NAGARJUNA GOVERNMENT COLLEGE (AUTONOMOUS) NALGONDA.

MODEL QUESTION PAPER

B. Sc III Yr, VI Semester-End examination

BOTANY (Paper-VIII)

(Plant Physiology)

Time: 2 ½ Hrs.

Max Marks: 70

Instructions to the candidates: Draw neat labeled diagrams wherever necessary.

SECTION-A

(5 X 2 = 10)

Define or explain ALL of the following :

1. Diffusion
2. Apoplast
3. Reddrop
4. Fermentation
5. Triple Response Growth

SECTION-B

(Instructions to the question PAPER SETTER: Set at least ONE question from EACH UNIT of the given syllabus).

Write short answers for **FOUR** of the following:

(4 X 5 = 20)

6. Osmosis
7. CAM
8. Biological Nitrogen Fixation
9. Ethylene
10. Nomenclature Of Enzymes
11. Photoperiodism

SECTION-C

(Instructions to the question PAPER SETTER: Set TWO questions from EACH UNIT of the given syllabus).

Write detailed answers for **ALL** of the following:

(4 X 10 = 40)

UNIT - I

12. (a) Explain the various components of water potential

(OR)

- (b) Describe the role of Micro nutrients in plant nutrition

UNIT - II

13. (a) Write an account of Cyclic and Noncyclic transport in photosynthesis

(OR)

- (b) Explain the mechanism of Translocation in plants

UNIT - III

14. (a) Write an essay on Glycolysis

(OR)

- (b) Describe the mechanism of Protein synthesis


UNIT - IV


15. (a) Explain the physiological effects of Auxins and Gibberellins

(OR)

- (b) Describe the role of Phytochromes in Flowering


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BOTANY


B.Sc III Year Practical Syllabus for V & VI Semester


Academic Year 2017-18


Paper – III (V & VII)

(Cell Biology, Genetics & Ecology)

1. Demonstration of cytochemical methods: Fixation of plant material and nuclear staining.
2. Study of various stages of mitosis using cytological preparation of Onion root tips.
3. Study of various stages of meiosis using cytological preparation of Onion root flower buds.
4. Karyotype study using cytological preparation of dividing root tip cells of Onion/photographs/permanent slides.
5. Solving genetic problems related to monohybrid, dihybrid ratio and interaction of genes (minimum of six problems in each topic)
6. Construction of linkage maps; two point test cross.
7. Knowledge of ecological instruments: Working principles and applications of Hygrometer, rain gauge, anemometer, altimeter, light meter, wet and dry bulb thermometer (with the help of Equipment/diagrams/photographs).
8. Determination of soil texture (composition of clay, sand silt etc.) and pH.
9. Study of morphological and anatomical characteristics of plant communities using locally available plant species; Hydrophytes (Eichhornia, Hydrilla, Pistia, Nymphaea, Vallisneria), Xerophytes (Asparagus, Opuntia, Euphorbia antillarum), Halophytes (Rhizophora, Aeluropus).
10. Detailed study on macro flora of a local fresh water body.
11. Estimation of carbonates and bicarbonates in the given sample.
12. Minimum of two field visits to local areas of ecological/Conservation of biodiversity importance (Sacred grove/Reserved forest/Botanical garden/Zoo Park/Lake etc).


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NAGARJUNA GOVERNMENT COLLEGE, NALGONDA

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Model Question Paper for B.Sc III Year Practical Examination

SUBJECT: - BOTANY

(Cell Biology, Genetics & Ecology)

Time: 3 Hrs

Max.Marks:50


Note: Answer all questions. Draw well labeled diagrams; wherever necessary.

- I. Carry out the cytological preparation and staining of the given material and report and any TWO stages of cell division to the Examiners (A).
(Procedure -3marks + Slidepreparation-6marks+Diagram-3 marks+ Inference -3 marks}. 15 M
- II. Solve the TWO given Genetics problems: (B,C).
(Working out-3marks+inference-2marks, each problem-5marks) 2x5=10 M
- III. Ecology: Carry out analysis of the water sample and estimate the amount of (D).
(Analysis-3marks+Results and inference-2marks) 05 M
- IV. Critical notes on (FIVE) spotters of scientific interest: (E, F. G. H. I).
(Identification-1mark+Notes-1 mark for each spotter-2marks) 5x2=10 M
- V. Viva- Voce (Interactive testing) 05 M
- VI. Record(s) and submissions. 05 M

* * *


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BOTANY


B.Sc III Year Practical Syllabus for VI Semester

Academic Year 2017-18


Paper – IV (VI & VIII)

(Physiology, Tissue Culture, Biotechnology, Seed Technology and Horticulture)

1. Determination of osmotic potential of vacuolar sap by plasmolytic method using leaves of Rheo/Tradescantia.
2. Determination of rate of transpiration using cobalt chloride method.
3. Determination of stomatal frequency using leaf epidermal peelings/impressions.
4. Determination of catalase activity using potato tubers by titration method.
5. Separation of chloroplast pigments using paper chromatography technique.
6. Estimation of protein by biuret method.
7. Isolation and estimation of DNA.
8. Testing of seed viability using 2,3,5-triphenyl tetrazolium chloride (TTC).
9. Demonstration of seed dressing using fungicide to control diseases.
10. Demonstration of seed dressing using biofertilizer (Rhizobium) to enrich nutrient supply.
11. Study on tools/equipment used in horticulture: Rake, hoe, spade, trowel, digger, pick-axe, shade net, glass house and mist chamber.
12. Demonstration of vegetative plant propagation: Rooting of cuttings – Leaf and Stem; layering; stem, bud and wedge grafting.
13. Study on the application of plant growth regulator (IBA) for rooting of cuttings using ornamental plants.
14. Knowledge of instruments and facilities used in plant tissue culture using equipment/photographs. Preparation of plant tissue culture medium.
15. Demonstration of micro propagation using explants like axillary buds and shoot meristems (inoculation of explants).
16. Study of biotechnology products: Samples of antibiotics, vaccines, biofertilizers, single cell protein, cosmetics; photographs of transgenic plants, multiple shoots and Artificial/synthetic seeds.
17. Study visits to places of horticultural and biotechnological interest Commercial nurseries/Botanical gardens; Biotechnology R&D laboratories/Industries.


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