

RAJAH SERFOJI GOVT.COLLEGE (AUTONOMOUS)

THANJAVUR – 5

Department of Botany

ALLIED BOTANY SYLLABUS

RAJAH SERFOJI GOVT.COLLEGE (AUTONOMOUS)

THANJAVUR – 5

(For Candidates admitted from 2015-2016 onwards)

DEPARTMENT OF BOTANY

ALLIED BOTANY

(For B.Sc., Zoology and Biochemistry major students)

Paper Sl.No	Semester	Subject Code	Title of the paper	Hours / Week	Credits
I	III	RR3AB1	Allied Botany Paper – I	4	4

Unit: 1 **Thallophytes:** Algae – General characters of Algae, Detailed study of the following: *Oscillatoria*, *Oedogonium*, *Ectocarpus* and *Polysiphonia*, Economic importance of Algae.

Unit: 2 **Fungi, Bacteria and Virus:**

Fungi: General characters of Fungi, Detailed study of the following: *Albugo*, *Yeast*, and *Polyporus*, Economic importance of Fungi.

Bacteria: Morphology, Ultra structure, reproduction – Binary fission, endospore, conjugation, transformation and transduction. Economic importance of Bacteria.

Virus: General characters, Structure of TMV and T4 phage.

Unit: 3 **Bryophytes, Pteridophytes and Gymnosperms:**

Funaria, *Adiantum* and *Cycas*.

Unit: 4 **Morphology:** Inflorescence types -Racemose, Cymose, and Mixed – Special types, Cyathium, Hypanthodium, Verticillaster and Thyrsus. Technical description of flower and floral diagram.

Unit: 5 Taxonomy: Systems of classification, General outline of Bentham and Hooker's classification. Detailed study and economic importance of the families: *Annonaceae*, *Rutaceae*, *Leguminosae*, *Cucurbitaceae*, *Apocynaceae*, *Lamiaceae* and *Poaceae*.

Reference:

1. Rao, K.N. and Krishnamurthy, K.V. 1979. Ancillary Botany.S. Viswanathan & Co. Chennai.
2. Nathawat, G.S., Sharma., P.D and Shani R.K. 1977. A Text Book of Botany. Ramesh Book Depot. Jaipur.
3. Fullar, H.J., and Tippo.O. 1949. College Botany. Hendry. Holt & co.
4. Rajaram, P. Allied Botany 1983. College Book Publisher. Chennai.
5. Jeyaram, P. Allied Botany 1983. Veekay Publishing house. Chennai.
6. Muneeswaran.A. Allied Botany Srinivas Book Center. Thanjavur.
7. Narayanaswamy.R.V., Rao.K.N. and Raman.A. 1992. Out lines of Botany.S. Viswanathan Printers and Publisher Pvt Ltd., Chennai.

Question Paper Pattern

Maximum Marks: 75 Duration:3hrs

Part A 10 X 2 = 20 Answer **All** questions (Two questions from each unit)

Part B 5 X 5 = 25 Answer **All** questions (Either or type -Two questions from each unit)

Part C 3 X10= 30 Answer Any **THREE** questions (One question from each unit)

Paper Sl.No	Semester	Subject Code	Title of the paper	Hours / Week	Credits
II	IV	RR4AB2	Allied Botany Paper – II	4	4

Unit: 1 Anatomy and Cytology:

Anatomy: Primary structure – Dicot stem, root and leaf – Monocot stem, root and leaf – secondary thickening in Dicot stem. Heart wood and sap wood.

Cytology: Ultra structure of plant cell, Brief outline of cell organelles – Cell wall, Endoplasmic reticulum, Golgi complex, Mitochondria, Chloroplast and Nucleus.

Unit: 2 Embryology and Genetics:

Embryology: Structure and development of anther - male gametophyte development. Structure, types of ovule and development of female gametophyte (Polygonum type). Endosperm (Nuclear, Cellular, Helobial and Ruminant). Double fertilization, development of Dicot embryo (*Capsella*).

Genetics: Laws of Mendel, monohybrid and dihybrid ratio.

Unit: 3 Plant Ecology and Evolution:

Plant Ecology: General Classification and adaptations of Hydrophytes (Hydrilla), Xerophytes (Nerium, Opuntia and mesophytes (Helianthus).

Evolution: Origin of life, theories of Lamarckism and Darwinism.

Unit: 4 Plant physiology and Respiration:

Transpiration and factors affecting it, guttation. Growth regulators (Auxins and Cytokinins).

Photosynthesis: Light and Dark reaction.

Respiration: Aerobic – Glycolysis and Krebs cycle, Anaerobic - Fermentation.

Movement: Geotropism, phototropism, Thigmotropism and Hydrotropism (Definition and examples only).

Unit: 5 Plant Biotechnology: Sterilization, Murashige and Skoog's

medium. Micropropagation, Organogenesis, Somatic embryogenesis. Applications of plant Biotechnology.

Reference:

1. Rao, K.N. and Krishnamurthy, K.V. 1979. Ancillary Botany. S. Viswanathan & Co, Chennai.
2. Nathawat, G.S. Sharma., P.D and Shani R.K. 1977. A text book of botany. Ramesh Book. Jaipur
3. Fullar, H.J and Tipppo.O. 1949. College Botany. Henry, Holt & Co.
4. Rajaram, P. Allied Botany 1983. College Book Publisher. Chennai.
5. Jeyaram, P. Allied Botany 1983. Veekay Publishing house. Chennai.
6. Muneeswaran.A. Allied Botany. Srinivas Book Publisher. Thanjavur.
7. Narayanaswamy.R.V.Rao.K.N. and Raman.A. 1992. Out lines of Botany. S. Viswanathan printers and publisher Pvt Ltd., Chennai.
8. Singh, Pande, and Jain, 1987, Antomy of seed plants. Rastogi publications.
9. Verma, P.S and Agarwal, V.K 1991. Cytology. S.Chand & co. New Delhi – 55
10. Kumaresan.V. Biotechnology. Saras Publications, Nagarcoil.
11. Dubey.R.C A text book of biotechnology. S. Chand & co.
12. Palaniyappan.S. Biotechnology (Tamil).

Question Paper Pattern

Maximum Marks: 75 Duration: 3hrs

Part A 10 X 2 = 20 Answer **All** questions (Two questions from each unit)

Part B 5 X 5 = 25 Answer **All** questions (Either or type -Two questions from each unit)

Part C 3 X 10 = 30 Answer Any **THREE** questions (One question from each unit)

Paper Sl.No	Semester	Subject Code	Title of the paper	Hours / Week	Credits
III	IV	RR4ABP	Allied Botany Paper-III Practical	3	4

One allied practical paper for subjects included in paper - I and paper - II. In practical candidates are expected to carry out the following exercise.

- a). To describe the Technical terms of the plants with respective to syllabi.
- b). To make dissection of the flower and construct floral diagrams
- c). To study monocot, dicot and ecology plant anatomy in the theory syllabus.
- d). Sterilization techniques – demonstration only
- e). Plant physiology – Demonstration of experimental set-ups
- f). Field visit and plant collection, submission of five herbarium specimens.
- g). To submit a record of work done by the candidate during the course of study in practical classes, duly certified and bonafied.

Reference:

1. Rao, K.N. and Krishnamurthy, K.V. 1979. Ancillary Botany
Viswanathan &co. Chennai.
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Ramesh Book Depot. Jaipur.
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6. Muneswaran.A. Allied Botany Srinivas Book Center. Thanjavur.
7. Narayanaswamy.R.V. Rao.K.N, and Raman.A. 1992. Out lines of Botany
Visvanathan Printers and Publisher Pvt Ltd., Chennai.
8. Sing, Pande, and Jain, 1987, Anatomy of seed plants. Rastogi publications,
Meerut.
9. Verma, P.S. and Agarwal., V.K. 1991. Cytology.S. Chand & co. Ram Nagar,
New Delhi.
10. Kumaresan.V.Biotechnology. Saras Publications, Nagarcoil .