ASSOICATE DEGREE IN SCIENCE

Botany-I **Total Mark: 100**

Appendix 'A'

(Outlines of Tests)

Paper-A:	Diversity of Plants (Written)	:	35 Marks
Paper-B:	Plant Systematics Anatomy and Development (Written):		35 Marks
Paper-C:	(Practical-I)	:	15 Marks
Paper-D:	(Practical-II)	:	15 Marks

Note:

(a) The 70% portion of question paper will be subjective type and 30% objective type, the question paper will be section wise and each question will be divided in parts.

(b) The choice in attempting the question will be minimized to some extent.

Appendix 'B'

(Syllabi and Courses of Reading)

Paper-A: Diversity of Plants **35 Marks**

Definition, scope and classification of the kingdomes.

Basic concepts of evolution in plant diversity

1. Viruses:

(a) General structure, types and reproduction of viruses.

(b) Viral diseases and their economic importance

2. Kingdom Monera Prokaryotae (Bacteria and Cyanobacteria):

General structure, reproduction, classification and economic (such as Nitrogen cycle and industrial role)

3. Kingdom Protista/Protoetsta: (Algae):

(a) General structure, occurrence, reproduction and economic importance

(b) Classification of algae with specific examples

(i) Chlorophyta: Volvax

(ii) Charophyta: Chara

(iii) Vaucheriophyta: Vaucheria

(iv) Bacillariophyta: Pinnularia

(v) Phacophyta: Laminaria

(vi) Rhodophyta.-Batrachospermum / Polysiphonia

4. Kingdom Fungi:

(a) General structure, life cycle, classification with specific examples:

(i) Plasmodiophoromycota Plasmodiophora

(ii)	Oomycota	Pythium
(iii)	Ascomycota	Penidllium. Saccharomyees. Alternaria
(iv)	Basidomycota	Ustilago, Puccinia and Agaricus

(b) Role of fungi in agriculture, diseases of major economic crop Plants : rusts, smuts, downy-and powdery mildews, damping off, root rots food and industry

Lichens:

General account, structure and life history of *Physcia*

5. Kingdom Plantac:

(a) Bryophyta (Atracheophyta):

General account, reproduction, classification, affinities and ecological importance with special reference to the life cycle of Anthoceros, *Porella* and *Polytricum.*

(b) Pteridophyta (Tracheophyta)

General account, structure, life cycle and biological importance with specific examples:

(i) Psilopsida; *Psilotum*

(ii) Lycopsida: *Setaginella*

(iii) Sphenopsida: *Equisetum*

(iv) Pteropsida ; *Poly podium, Adiantum* and *Marsilea*

(c) Gymnospermae (seed Plants)

General account with reference to structure and life history of Cyeas, *Pinus* and *Ephedra and* their affinities.

(d) Angiosparmae

(e) Introduction and distinguishing features.

Paper-B: Plant Systematics, Anotomy and Development 35 Marks

Plant Systematic:

1. Introduction to Plant systematics its aims objectives and importance.
2. Classification : Importance, brief history, introduction, various systems of classification (Brief account of all the systems)
3. Brief introduction to nomenclature, importance of Latin names and binomial system with an introduction to international code of Botanical Nomenclature (ICBN).
4. Morphology and Phytography a detailed account of various morphological characters of Root, stem, leaf, inflorescence, flower, placentation and fruit types.
5. Diagnostic characters, economic importance and distribution pattern of the following families;

1. Ranunculaceae

2. Brassicaceae (Cruciferae)
3. Fabaceae (Leguminosae)
4. Rosaceae
5. Euphorbiaceae
6. Rataceae
7. Moraceae
8. Chenopodiaceae
9. Cucurbitaceae
10. Solanaceae
11. Lamiaceae (Labiatae)
12. Asteraceae (Compositae)
13. Liliaceae
14. Poceac (Gramineae)

Anatomy and Development:

1. Cell wall; structure and chemical composition.
2. Tissue and Tissu System: Concept; structure and function of various tissues.
3. Structure and development of root, stem and leaf including various type of meristem. Primary and secondary growth of dicot stem.
4. Early development of Plant body (embryology) *Capsella bursa-pastoris* or *Arubidopsis.*

Paper-C: Practical-I **15 Marks**

General culturing, maintenance. Preservation and staining of micro-organisms. Study of the morphology and reproductive structures of the types mentioned in theory paper. Identification of various types mentioned from prepared slides and fresh collection. Collection of diseased specimens of plants and their identification.

Paper-D: Practical-II **15 Marks**

1. Study of cross section of monocot and dicot stem.
2. Study of the simple and compound tissue in macerated and sectioned material.
3. Study of cross section of bifacial leaf.
4. To study the Prepared slides of secondary growth in dicot stem.
5. Identification of families given in syllabus with the help of keys.
6. Technical description of common flowering plants belonging to families mentioned in theory syllabus.
7. Field trips shall be undertaken to study and collect local plants, Students shall submit 40 fully identified herbarium specimens.

Recommended Books:

1. Bold. H.C.. Morphology of Plants. 2nd cd. Harper & Row, N Y.
2. Dickison, W.C. (2000). Integrative Plant Anatomy. Academic Press. UK.
3. Esau, K. (1960) Aatomy of seed plants, Lohn Wiley, New York
4. Hafiz, A. (1986). Plant Diseases. Pakistan Agricultural Research Council. Islamabad, Pakistan.
5. Lee, R.E. (1999). Phycology. Cambridge University Press. U.K.
6. Mauseth, J.D. ((1998). An Introduction to Plant Biology : Multimedia Enhanced. Jones and Bartlett Pub U.K.
7. Moore. R.C.. W.D. and Vodopich, D.S. (1998). Botany. McGraw Hill Company. U.S.A.
8. Pahn, A. (1990) Plant Anatomy. Pergamon Press, U.K.
9. Pandey. S.N. (1994). Text Book of Botany Vol. II. S. Chand & Co. New Dehli.
10. Raven, PX, Evert, R. E. and Eichorn, S. E. (1999). Biology of Platns. W. H. Freeman and Company Worth Publishers.
11. Ross, F.C. (1991). Introduction to Microbiology. John Willy, U.S.A.
12. Ray. P. M. Sleeves, T. A. and Fultz. T. A. (1998). Botany. Saunders College Publishing. U.S.A.
13. Stuessy, T.F. (1990). Plant Taxonomy. Columbia University Press, USA.
14. Stuessy, T.F. (1990). Plant Taxonomy. Columbia University Press, USA.
15. Sharma. O.P. (1992). Text book of Thallophytes. Tata McGraw hill Education, Publishing Company, New Delhi.
16. Subramanium, N. S. (1997) Modern Plant Taxanomy, Vikas Publishing House Pvt. Ltd.