

S.S. Jain Subodh P.G. College, Jaipur (Autonomous)

M.SC (Botany)-I semester

Paper -IV (Plant Ecology and Environment)

Assignment

Attempt one question from each unit

Max Marks: 30

Unit -I

Q1. What are biological interactions? Describe the various interspecific and intraspecific positive interactions with suitable examples.

Q2. Write a short note on any two

1. Characteristics of Population
2. Scramble and contest competition model
3. Population growth curve

Unit -II

Q.3 Write a short note on any two.

- i. Concepts of community and continuum
- ii. Species diversity
- iii. Ecological niche

Q. 4 Write a short note on

- i. Succession models
- ii. Mechanism of succession
- iii. Concept of climax

Unit-III

Q.5 Write a detailed note on food chain and food web in fresh water ecosystem.

Q.6 Write a short note on

- i. Energy flow models
- ii. Phosphorus cycle

Unit-IV

Q.7 Write a detailed note on Major biomes of the world and the impact of changing climate on biomes.

Q.8 Write a note on

- i. International conservation organisations
- ii. Sustainable development and natural resource management in a changing environment.

S. S. Jain Subodh PG College, Jaipur
Assignment 2026
M.SC I Semester Botany
Paper III Biology and Diversity of Microbes
Session 2026-2027

MM= 30

Answer any four questions :

Unit I

Q.1 Explain Bergey's manual of Systematic Bacteriology in detail. (7.5)

Q. 2 Write notes on : (3.5+4)

- a) Mycoplasma
- b) Cyanobacteria

Unit II

Q. 3. Explain in detail general characteristics of bacteria with special reference to cell wall Draw well labelled diagrams wherever necessary.

(7.5)

Q.4. Write notes on :

(3.5+4)

- a. Properties , structure and life cycle of viruses.
- b. Archaeobacteria

Unit III

Q. 5. Write a note on antibody structure and function.

Q.6. Write notes on :

- a) Humoral and cell mediated immune response
- b) Monoclonal antibodies and their uses.

Unit IV

Q. 7. Write a note on biofertilizers and their importance.

(7.5)

Q. 8. Write notes on :

(3.5+4)

- a. Microbial spoilage of food products and their control
- b. Biofilms

M.Sc. Sem I

Assignment September, 2026

MBOT: 101 Cell Biology and Evolution

Max Marks:

UNIT – I

Q.1 Write short notes on:

- a) Structure of the cell wall
- b) Structure of Mitochondria
- c) Active and passive transport

OR

Q. 2 What do you mean by protein sorting? Discuss the mechanism of protein sorting in nucleus, chloroplast and ER.

UNIT – II

Q.3 Write a brief note on regulation of the cell cycle, emphasizing the roles of cyclin and Cyclin-dependent kinases (CDKs)

OR

Q. 4 What are the general principles of cell communication? Discuss cell adhesion and roles of different adhesion molecules.

UNIT- III

Q. 5 Write short notes on:

- i) Apoptosis
- ii) Oncogenes

OR

Q. 6 Write short notes on any two:

- i) Darwinism
- ii) Concept of Oparin and Haldane
- iii) Origin of Eukaryotic cells

UNIT- IV

Q. 7. Write short notes on:

- i) The evolutionary time scale
- ii) Allopatric and sympatric speciation

OR

Q. 8. Discuss gene pool and gene frequency in detail. Also explain the Hardy – Weinberg law in detail.

S.S. Jain Subodh P.G. (Autonomous) College, Jaipur
M.Sc. Botany Semester I Assignment – October 2026

Paper-II: Morphology and Diversity of Non-Vascular Plants

Attempt any four questions (one from each unit)

Max Marks 30

Unit I

Q1. Write a detailed note on range of thallus in Algae with the help of suitable example and diagrams. 7.5

OR

Q2. Write a short note on :

4+3.5

- a) Economic importance of Algae
- b) Life Cycle of Pinnularia (Diagrammatic representation)

Unit II

Q3. Describe the general characteristics of Fungi with special reference to cell wall and hyphal growth. 7.5

OR

Q4. Write short note on :

4+3 .5

- a) Asexual reproduction in fungi
- b) Heterothalms

Unit III

Q5. Give a detailed account on life cycle of Neurospora with its significance in genetics. Draw neat labelled suitable diagram. 7.5

OR

Q6. Write short note on :

4+3.5

- a) Poisonous Fungi
- b) Drechslera or Colletotrichum

Unit IV

Q7. Describe the general characteristics of Bryophytes with lifecycle pattern and examples.

7.5

OR

Q8. Write short note on (any two)

3.5 +4

- a) Reproductive structure of Plagiochasma
- b) Sporogonium of Notothylus
- c) Sterilisation of sporogenous tissue in Bryophytes

S.S. Jain Subodh P.G. College, Jaipur(Autonomous)

M.SC (BOTANY)-III Semester

Elective 304(A)- Advanced Plant Pathology-1

Assignment October 2026

Max Marks:30

Attempt one question from each unit

Unit-I

Q1. Define the symptoms. Write a detailed account of plant disease symptoms caused by plant pathogens with suitable illustrations

Q2. Describe the effect of environmental factors on plant disease development.

Unit-II

Q.3 Describe the symptoms, causal organism, disease cycle and control measures of Early Blight of Potato.

Q4. Write a detail note on symptoms, causal organism, disease cycle and control measures of Blight of rice.

Unit-III

Q5. Write a detailed account of gall development, host-parasite interaction and physiology of insect-induced gall of Prosopis.

Q.6 Define Phytoplasmic disease. Describe symptoms, the causal organism, disease cycle and control measures of Little leaf of Brinjal.

Unit-IV

Q7. Describe various symptoms produced by nematodes and their interrelationship with other plant pathogens.

Q8. Describe the symptoms, causal organism, disease cycle and control measures of Molya disease of wheat.

S. S. Jain Subodh PG College, Jaipur

Assignment M.SC III Semester Botany

Paper I Molecular Biology

Session 2026-27

MM= 30

Answer any four questions :

Unit I

Q.1 Explain the chemical, physical, spectroscopic and thermal properties of DNA in detail. (7.5)

Q. 2 Write short notes on: (Any two) (3.5 +4)

- a. DNA replication in Prokaryotes
- b. DNA damage and recombination repair mechanism
- c. Pre- replication complex in Eukaryotes

Unit II

Q. 3. Explain in detail transcription in Eukaryotes with diagrammatic sketches. (7.5)

Q.4. Write notes on: (3.5 +4)

- a. Mediators and silencers
- b. RNA splicing and processing

Unit III

Q. 5. Explain translation initiation, elongation and termination in Prokaryotes with the help of diagrammatic sketches. (7.5)

Q.6. Write notes on : (3.5 +4)

- a. Regulation of gene expression in Prokaryotes with the help of Lac operon
- b. Histone modifications

Unit IV

Q. 7. Explain different tools and techniques used in DNA cloning . (15)

Q. 8 Write notes on (Any two): (7.5 x 2 =15)

- a. DNA Hybridization
- b. DNA Sequencing methods

- c. DNA footprinting and Fingerprinting
- d. Polymerase Chain Reaction

M.Sc. (BOTANY) III Semester
Assignment
PAPER-IV (B)
SEED SCIENCE AND TECHNOLOGY – I

MM-30

UNIT-I

What are the main objectives of seed testing? How it is important in agriculture. (7.5)

OR

Write short notes on any two: (7.5)

- a) Physical and genetic purity analysis.
- b) Seed viability test.
- c) Seedling evaluation.

UNIT-II

Write a detailed note on identification and structure of wheat seed. (7.5)

OR

Write short notes on any two: (7.5)

- a) Hybrid seed production.
- b) Terminator seed technology.
- c) Weed seeds and their effects in seed production.

UNIT-III

Q.3 Discuss the physiological and metabolic changes during seed germination in detail. (7.5)

OR

Write short notes on the following (any two): (7.5)

- a) Mycotoxins
- b) Seed longevity.
- c) Principles of safe seed storage.

UNIT-IV

Q.4 Write a detail note on Indian Seed Act and recent amendments. (7.5)

OR

Write short notes on any two: (7.5)

- a) ISTA rules and recommendations.
- b) Seed certification standards
- c) Quarantine regulations.

M.Sc. Sem III

Assignment September 2026

MBOT: 303 Morphology and Developmental Anatomy of Angiosperm

Max Marks

UNIT - I

Q. 1 Write short notes on:

- a) Basic concepts of development.
- b) Mobilization of carbohydrates and proteins during seed germination

OR

Q.2 How are the mutants important in understanding seedling development? Discuss different genes expressed during seedling development in detail.

UNIT – II

Q. 3 Write a detailed note on cytological and molecular analysis of SAM.

OR

Q.4 Write explanatory notes on (any two):

- i) Secretory ducts
- ii) Laticifers
- iii) primary and secondary tissue differentiation in stem

UNIT – III

Q. 5 Write short notes on the following:

- i) Differentiation of epidermis in stomata and trichomes
- ii) Leaf trace and Leaf gap

OR

Q. 6 What is a floral meristem? Discuss the genetics of floral organ differentiation and homeotic mutants in *Arabidopsis* and *Antirrhinum*.

UNIT – IV

Q. 7 Write short notes on (any two):

- a) Organization and development of root apical meristem (RAM) and associated theories.
- b) Development of lateral roots.
- c) Spermoderm pattern

OR

Q. 8 Write a detailed note on the internal and external morphology of monocot and dicot seeds. Draw suitable diagrams also.

S.S. Jain Subodh P.G. College

Department of Botany

Paper- II Taxonomy of Angiosperms

Assignment- October 2026

Paper- II -Taxonomy of Angiosperms

Attempt any four questions

Max Marks:30

Unit –I

Q 1. What is ICBN. Give detailed account on principle ,rules and recommendation of ICBN.

Or

Q 2. Write short notes on-

- a. Concept of species
- b. Biosystematics methods

Unit-II

Q 3. Write short notes on-

- a. Serology as taxonomic tool
- b. Important national and International Herbaria

Or

Q 4. Write a detail account on the Taxonomic literature.

Unit-3

Q 5. Write about Photochemistry and cytology as taxonomic evidence in relation to Taxonomy with examples.

Or

Q 6. Give details of basics and outline of Classification system of Thorne with merits and demerits.

Unit-4

Q 7. Compare the following families –

- a. Apocynaceae and Asclepiadaceae
- b. Solonaceae and convolvulaceae

Or

Q 8. Describe the various theories proposed for the origin of Angiosperms .