

Model Question Paper
M.Sc. Botany - Semester III
Core Paper 302: PLANT DEVELOPMENT AND PLANT REPRODUCTION
(With effect from **2021 - 2022** admitted batches)

Time: 3 hours

Max. Marks: 80 marks

(16 X 5 = 80)

Answer **one** question from **each Unit**.

All questions carry equal marks

Unit:1

- 1 A Diagrammatically explain the simple tissues in plants
- B Describe the Root microbe interactions

OR

- 2 A Diagrammatically explain Complex tissues in plants
- B Describe the Root- shoot transition

Unit: II

- 3 A Describe the Shoot apical meristem (SAM).
- B Explain the Floral development taking the examples of homeotic mutant *Arabidopsis*

OR

- 4 A Describe the structure of foliage leaves and modified leaves
- B Write a note on Anomalous secondary growth in dicot

Unit: III

- 5 A Describe the Pollination mechanisms and vectors
- B Illustrate the methods to overcome self-incompatibility

OR

- 6 A Describe the process of fertilization
- B Write a note on Sporophytic Self-incompatibility:

Unit: IV

- 7 A Explain the process of Microsporogenesis,
- B Describe the different Types of ovule in Angiosperms

OR

- 8 A Write a note on Types and role of tapetum in Pollen development
- B Describe the different Types of embryo sacs.

Unit: V

- 9 A Explain the Types and functions Endosperm
- B Write a note on Seed dormancy

OR

- 10 A Diagrammatically explain the Embryo development angiosperms
- B Write a note on LEA proteins

Model Question Paper
M.Sc. Botany - Semester III
Core Paper 303: PLANT ECOLOGY
(With effect from **2021 - 2022** admitted batches)

Time: 3 hours

Max. Marks: 80 marks

(16 X 5 = 80)

Answer **one** question from **each Unit**.

All questions carry equal marks

Unit – I

1. a. Define the concepts of niche. Explain differences between fundamental and realized niche.
b. What is population? Explain the characteristics of population.

OR

2. a. Explain about different factors that influence the population growth.
b. What are r and k selection?

Unit – II

3. a. Explain about different species interactions.
b. What is ecological succession? Explain this with by using the example hydrosere.

OR

4. a. Explain what you understand about community structure and its components.
b. What is species diversity and discuss about diversity index.

Unit – III

5. a. Discuss about different components of Environment and its effect on life
b. What is biome? Explain different biomes across the world.

OR

6. a. What is greenhouse effect? Explain about causes and its importance on climate change
b. Discuss the importance of biodiversity and its threats

Unit – IV

7. a. Explain about energy dynamics in different ecosystems.
b. Discuss the structure and functions of aquatic ecosystems.

OR

8. a. Explain about island Biogeography.
b. Give a brief account on different biogeographical zones of India.

Unit – V

9. a. Discuss the principles of conservation and different conservation methods used
b. Explain about biosphere reserves with examples.

OR

10. a. What is air pollution and explain its causes and effects on human and animal health.
b. Discuss the effects of pollution on plant ecosystem.

M.Sc. Botany - Semester III
Core Paper 304: PLANT PHYSIOLOGY
(With effect from 2021 - 2022 admitted batches)

Time: 3 hours

Max. Marks: 80 marks

(16 X 5 = 80)

Answer **one** question from **each Unit**.

All questions carry equal marks

Unit – I

1. a. Explain determination of water potential.
b. Write a brief notes on Micro elements.

OR

2. a. Write a brief notes on Ascent of Sap.
b. Explain the role of Macro nutrients in Plants.

Unit – II

3. a. Explain the Photoperiodism and its significance.
b. Describe the Phytochrome structure.

OR

4. a. Write a brief notes on Jasmonic acid and Salicylic acid.
b. Explain the role of Plant growth hormones.

Unit – III

5. a. Describe the photo oxidation of water.
b. Write a brief notes on photosynthetic pigments.

OR

6. a. Explain the significance differences between C3 and C4 plants.
b. Write a brief notes on Photorespiration.

Unit – IV

7. a. Explain the Glycolysis cycle.
b. Describe the Pentose Phosphate Pathway.

OR

8. a. Explain the Glyoxylate Cycle.
b. Describe the biosynthesis of Proteins.

Unit – V

9. a. Write a brief notes on Water stress.
b. Explain the tolerance mechanism in plants.

OR

10. a. Write a brief notes on Oxidative stress.
b. Write a brief notes on heat shock proteins.