

**M.Sc. (Final) DEGREE EXAMINATION, DECEMBER 2008.**

**Second Year**

**Botany**

**Paper V — DEVELOPMENT BIOLOGY OF ANGIOSPERMS AND ETHANOBOTANY**

**Time : Three hours**

**Maximum : 100 marks**

**SECTION A — (5 × 8 = 40 marks)**

**Answer any FIVE questions.**

**Each question carries 8 marks.**

1. Male gametophyte.
2. Apomixis.
3. Vascular bundle.
4. Cork.
5. Endemic species.
6. Included phloem.
7. Biodiversity of sacred groves.
8. Phytomedicines.

**SECTION B — (4 × 15 = 60 marks)**

**Answer ALL questions.**

**Each question carries 15 marks.**

9. (a) Write a critical account on the double fertilization in Angiosperms.

**Or**

- (b) Write an essay on polyembryony and add a note on its significance.

10. (a) What are meristems? Give an account of their cellular structure, distribution and functions in plants.

**Or**

- (b) What is anomalous secondary growth? Describe the anomalous secondary growth using suitable example.

11. (a) Give an account of sacred groves and their biological significance.

**Or**

- (b) Write about the scope and importance of traditional medicine in India.

12. (a) Write about scientific evaluation of medicinal plants used by tribal people.

Or

- (b) Discuss the importance of phytochemicals in modern medicine.

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(DBOT 22)

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**Paper VI — MICROBIOLOGY, MYCOLOGY AND PLANT DISEASES**

**Time : Three hours**

**Maximum : 100 marks**

**SECTION A — (5 × 8 = 40 marks)**

**Answer any FIVE questions.**

**Each question carries 8 marks.**

1. Chemoautotrophy.
2. Classification of viruses.
3. Asexual reproduction in zygomycotina.
4. Basidiocarp.
5. Symptoms caused by plant pathogenic fungi.
6. Plant disease indexing.
7. Brown rot of potato.
8. Citrus canker.

**SECTION B — (4 × 15 = 60 marks)**

**Answer ALL questions.**

**Each question carries 15 marks.**

9. (a) Discuss the role of bacteria in nitrogen cycle.  
Or  
(b) Describe the morphology and ultra structure in relation to function of bacterial cell.
10. (a) Give an account of the economic importance of fungi.  
Or  
(b) Discuss the recent trends in the classification of fungi.
11. (a) Discuss the role of enzymes and phytoalexins in pathogenesis in plants.  
Or  
(b) Give an account of fungal disease development in plants.

12. (a) Give an account of biological control of plant diseases.

**Or**

(b) Describe in detail the epidemiology of club root and powdery mildew of cucurbits.

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wk 7

**(DBOT 23)**

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**Botany**

**Paper VII — CELL BIOLOGY AND MOLECULAR BIOLOGY**

**Time : Three hours**

**Maximum : 100 marks**

**SECTION A — (5 × 8 = 40 marks)**

**Answer any FIVE of the following.**

**All questions carry equal marks.**

1.  $F_0 - F_1$  Particles.
2. Plant vacuoles.
3. Transposons.
4. Regulatory genes.
5. C-Value paradox.
6. Bacterial Conjugation.
7. Okazaki fragments.
8. A, B and ZDNA.

**SECTION B — (4 × 15 = 60 marks)**

**Answer ALL the following.**

9. (a) Give an account of the ultra structure of chloroplast and indicate its functions.  
**Or**  
(b) Discuss the chemical composition and various molecular models of plasma membrane.
10. (a) Describe the mechanism of signal transduction mediated by G-protein coupled receptors.  
**Or**  
(b) Write an account of the cellular behavior during cancerous growth.
11. (a) Discuss the lytic and lysogenic cycles exhibited by bacteriophages during bacterial infection.

**Or**

(b) Describe the experimental evidences to prove that DNA is the genetic material.

12. (a) Discuss the events at the replication fork during DNA replication in prokaryotes.

**Or**

(b) Discuss in detail the regulation of prokaryotic gene expression using Lac operon as an example.

**(DBOT 24)**

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**Second Year**

**Botany**

**Paper VIII — PLANT BIOTECHNOLOGY**

**Time : Three hours**

**Maximum : 100 marks**

**SECTION A — (5 × 8 = 40 marks)**

**Answer any FIVE of the following.**

**All questions carry equal marks.**

1. Laminar Flow Bench.
2. Meristem culture - Production of pathogen free plants.
3. Synthetic seeds.
4. Colony hybridization.
5. Restriction Enzymes.
6. Agrobacterium tumefaciens.
7. Selectable Marker genes.
8. Herbicide tolerant transgenics.

**SECTION B — (4 × 15 = 60 marks)**

**Answer ALL questions.**

9. (a) Discuss the different stages of micro propagation and indicate the commercial use of the technology.

**Or**

(b) Describe the methods for obtaining androgenic haploids and write their role in crop improvement.

10. (a) Discuss the advantages and limitations of callus, suspension and single cell cultures.

**Or**

(b) Explain the methods of isolation of protoplasts and any two methods of sorting out the fused products.

11.(a) Enumerate the salient features of Polymerase Chain Reaction and indicate its uses in gene amplification.

**Or**

(b) Describe the technique of Southern blotting and write its applications in molecular biology.

12.(a) Describe the mechanism of T-DNA delivery in an *Agrobacterium* mediated gene transfer.

**Or**

(b) What are Molecular markers? Discuss the applications of RFLP and RAPD in crop improvement.

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