

THIRD SEMESTER P.G. DEGREE EXAMINATION, NOVEMBER 2021

(CCSS)

Applied Plant Science

BOT 3E 23—HORTICULTURE

(2019 Admissions)

Time : Three Hours

Maximum : 80 Marks

Part A*Answer any two questions in not more than 500 words.*

1. Detail on Irrigation : definition, different methods of irrigation followed in horticultural crops, their merits and demerits.
2. Detail on plant components and non-plant components used in landscaping.
3. Give a detailed account on the different kinds of botanical and ornamental gardens.

(2 × 10 = 20 marks)

Part B*Answer any eight questions in not more than 250 words.*

4. Comment on the historical perspectives and importance of horticulture.
5. Explain the differences between a botanical garden and ornamental gardens.
6. What are the major steps taken in the construction of a terrarium ?
7. What is Olericulture ? Write down the principles behind it.
8. What are the different methods of application of manures and fertilizers to horticultural crops ?
9. What are the major tools and implements in horticulture ?
10. Explain artificial vegetative propagation adopted in horticulture.
11. Briefly describe the different types of cutting tools used in horticulture ?
12. Write notes on some major diseases of the garden plants, its symptoms and causative agent.
13. Comment on the use of growth regulators in horticulture.

(8 × 5 = 40 marks)

Turn over

Part C

Answer any ten questions in not more than five sentences.

14. Explain DWC.
15. What is Floriculture ?
16. Write on NPK fertilizers and its advantages.
17. Where is push pull technology used in horticulture ?
18. What is the advantage of integrated pest management ?
19. Give examples for natural soil conditioners.
20. What is the difference between trimming and pruning ?
21. What are Secateurs ?
22. What are the different methods of grafting ?
23. How indoor plants are maintained ? Give some examples for indoor plants.
24. Write on manual and mechanical modes of post harvesting.
25. What are vertical gardens ? Brief the advantages of vertical gardens.

(10 × 2 = 20 marks)

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BOT 3C 21—CELL BIOLOGY AND MOLECULAR BIOLOGY

(2019 Admissions)

Time : Three Hours

Maximum : 80 Marks

Part A*Answer any two questions.**Each answer should not exceed 500 words.*

1. Explain the different types of DNA recombination models and their mechanisms.
2. Give a detailed account on the structure and functions of cytoskeleton. Comment on its role in cell cycle.
3. Write a detailed account on the ultrastructure of eukaryotic chromosome.

(2 × 10 = 20 marks)

Part B*Answer any eight questions.**Each answer should not exceed 250 words.*

4. Write a note on ABC and SLC transporters.
5. Give a short account on the scope of plastid engineering. Give examples.
6. Explain how transport of materials occurs across the nuclear boundary.
7. Write a note on special types of chromosomes.
8. What are cyclins and cyclin-dependent kinases ? Explain their roles.
9. Give a short account on organellar DNA and its features.
10. Give a detailed account on the different types of RNAs and its role.
11. What are operons ? What is the difference between metabolite and amino acid operons ?
12. What is meant by site-specific recombination ? Explain.
13. Give a short account on endocytosis. How it is different from exocytosis ?

(8 × 5 = 40 marks)

Turn over

Part C

*Answer any **ten** questions.*

*Each answer should not exceed **five** sentences.*

14. Holliday junction and its significance.
15. miRNA.
16. Features of Z-DNA.
17. Nuclear envelopathy.
18. HMG proteins.
19. siDNA.
20. RRF.
21. Proteasome.
22. Hectian strands.
23. RNA editing.
24. tasiRNA.
25. Trinucleotide repeat expansion.

(10 × 2 = 20 marks)

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BOT 3C 19—GENETICS, PLANT BREEDING AND BIostatISTICS

(2019 Admissions)

Time : Three Hours

Maximum : 80 Marks

Part A

I. Answer any *two* of the following. Each answer not exceeding 500 words. Each question carries 10 marks :

- 1 Explain the genetic mechanism of sex determination.
- 2 Give an account on the conventional methods of plant breeding.
- 3 Describe various measures of variations.

(2 × 10 = 20 Marks)

Part B

II. Answer any *eight* of the following. Each answer not exceeding 250 words. Each question carries 5 marks :

- 4 Comment on breeding for resistance.
- 5 Describe the statistical tools used in genetic analysis.
- 6 Explain the genetic organization of bacteria.
- 7 Write a note on extra nuclear inheritance.
- 8 Explain distant hybridization and its importance.
- 9 What are the advantages of micropropagation ?
- 10 Explain centres of diversity.
- 11 Give an account on the sampling procedures in biostatistics.
- 12 Experimental designs.
- 13 Explain correlation and regression analysis.

(8 × 5 = 40 marks)

Part C

III. Answer any *ten* of the following. Each answers not exceeding 100 words. Each question carries 2 marks :

- 14 What is Hardy-Weinberg equilibrium ?
- 15 Heritability.
- 16 Eugenics.
- 17 What is a sex-limited character ?
- 18 What is independent assortment ?
- 19 Transformation.
- 20 What is mutation breeding ?
- 21 Heterosis breeding.
- 22 NBPGR.
- 23 ANOVA.
- 24 Chloroplast genes.
- 25 Census method.

(10 × 2 = 20 marks)

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Applied Plant Science

BOT 3C 17—ANGIOSPERM TAXONOMY AND PHYTOGEOGRAPHY

(2019 Admissions)

Time : Three Hours

Maximum : 80 Marks

Part AI. Answer any *two* of the following. Each answer not exceeding 500 words :

- 1 Describe the importance of herbaria and botanical gardens in taxonomic research.
- 2 Give a broad outline of Bentham and Hooker's system of classification. Add a note on its merits and demerits.
- 3 Explain the role of anatomy, palynology and morphology in solving taxonomic problems.

(2 × 10 = 20 marks)

Part BII. Answer any *eight* of the following. Each answer not exceeding 250 words :

- 4 Theories of discontinuous distribution.
- 5 Cladistics
- 6 APG system.
- 7 Factors influencing plant distribution.
- 8 Parallelism and convergence.
- 9 Indented and bracketed key.
- 10 Scope of taxonomy.
- 11 Effective and valid publication.
- 12 Vegetation zones in relation to latitude and altitude.
- 13 Adansonian principles.

(8 × 5 = 40 marks)

Turn over

Part C

III. Answer any *ten* of the following. Each answer not exceeding 100 words :

- 14 Write on the process involved in describing a species.
- 15 DNA barcoding.
- 16 Author citation.
- 17 Lectotype and neotype.
- 18 Flora.
- 19 Rejection of names.
- 20 Pantropical distribution.
- 21 Artificial system of classification.
- 22 Naming of cultivars.
- 23 GIS.
- 24 Nomina conservanda.
- 25 Endemism.

(10 × 2 = 20 marks)