M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022.

Third Semester

Botany

EVOLUTION, ECOLOGY AND PYTOGEOGRAPHY

(CBCS – 2019 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** questions.

1.   Explain the significance of Hardy-Weinberg equation.

2.   Define the Founder effect.

3.   Habitat and Abiotic factors

4.   Biotic components of Estuarine.

5.   Ecto Commensal.

6.   Ecological niche.

7.   Copse.

8.   Species richness.

9.   Alexander van hamboldt.

10.   Zoogeography.

Part B $(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Define the various aspects of co-speciation in living organisms.

Or

    (b) Explain why some clades are very diverse and some usually sparse.

12. (a) What are the Pyramid of biomass and numbers in the Pond Ecosystem? Explain with relevant diagram.

Or

    (b) Edge effect is notice in which type of Ecosystem? Could you narrate the same with relevant example?

13. (a) Narrate the food chain and food web of a terrestrial ecosystem with a neat sketch.

Or

    (b) What are K and r selected species of a Population? Present your views with relevant example.

14. (a) What are the dominant organisms seen in Boreal forests? List out the same.

Or

    (b) With the advent of Industrialization and Urbanization, do you think afforestation is needed to safeguard the ecosystem?

15. (a) Define and elaborate on the concept of Dynamic Phytogeography.

Or

    (b) What are the evidences existing for Continental drift? Explain the idea with the evidences.

R7312

Answer any **three** questions.

16. Could you state the factors in the environment which might encourage diversification of living organisms?

17. How does the NIF genes play an important role in the Nitrogen fixation in the environment?

18. Can you bring out the salient features of the relationship that exists during the Predation and Parasitism with examples?

19. Illustrate the typical Temperate Forest with the abiotic and biotic factors dominating the ecosystem.

20. Is it possible to elaborate on the types of Endemism with relevant information?

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R7312

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022.

Third Semester

Botany

PLANT BIOTECHNOLOGY BIOETHICS AND IPR

(CBCS – 2019 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** questions.

1.   Nucleosome

2.   Transposons

3.   Plastids

4.   Mitochondrial DNA

5.   Root nodules

6.   Nodulin genes

7.   T-DNA

8.   Plasmid

9.   Viroids

10. Bt-Cotton

Part B $(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Describe the role of enzymes in transcription process.

Or

(b) Analyse the chromosome conduct in crossing over.

12. (a) Enumerate the functions of chloroplast.

Or

(b) Discuss on post transcriptional modification in protein synthesis.

13. (a) Explain the function of *Rhizobium* genes in nodule development.

Or

(b) Write a note on role of elicitor for nodule development.

14. (a) Discuss about the genetic organization of the Ti Plasmid.

Or

(b) Analyse the *Agrobacterium* method of gene transformation.

15. (a) Discuss about the plant breeding method for crop improvement.

Or

(b) Describe the features of genetically engineered plants.

R7313

Answer any **three** questions.

16. Give an account of the transposable elements.

17. Analyse the structure and genome organization of the mitochondria.

18. Discuss in details about the genetic determinants of nodule formation.

19. Give a detailed account on process and application of T-DNA.

20. Enumerate the expression strategies of genome organization in RNA virus.

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R7313

R7314		Sub. Code
		525303

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

Third Semester

Botany

BIOTECHNIQUES, BIOSTATISTICS AND BIOINFORMATICS

(CBCS – 2019 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** questions.

1. Agarose

2. FCM

3. What is measure of central tendency?

4. What is Ogive curve?

5. Define bimode.

6. Alternate hypothesis.

7. List out any two protein database sequence name.

8. DDBJ.

9. PSI BLAST.

10. PHYLODRAW.

Part B $(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a)   Write short notes on GLC.

                          Or

    (b)   Briefly explain about scintillation counter.

12. (a)   Discuss about types of population.

                          Or

    (b)   Calculate mean value for the given data.

           X   0-5   5-10   10-15   15-20   20-25

           F   5   7   6   5   7

13. (a)   Describe in detail about the significance of 't' test.

                          Or

    (b)   Explain the steps involved in chi square test

14. (a)   Add note on Protein Data Base sequence.

                          Or

    (b)   Comment on the following:

           (i)   EMBL

           (ii)   NCBI.

15. (a)   Give an account on multiple sequence alignment.

                          Or

    (b)   Explain about the sequence similarity search.

                    2   **R7314**

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Write the principle, procedure and application of SDS-PAGE.

17. Calculate standard deviation for the given data

    X   0-5   5-10   10-15   15-20   20-25

    F   5   12   3   7   3

18. How will you calculate statistical significance? Explain the steps involved in it.

19. Discuss in detail about nucleotide database sequences.

20. Explain in detail about aminoacids substitution matrix with an example.

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R7314

R7315

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

Third Semester

Botany

ECONOMIC BOTANY

(CBCS – 2019 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1. List out the cytotaxonomic groups of Wheat.

2. Distinguish between Cereals and Millets.

3. Classify the types of Vegetables.

4. State the uses of Tapioca.

5. Write a short note on origin of Spices.

6. What is CTC method of Tea processing?

7. Write characteristics of cotton fibres.

8. Differentiate porous and non-porous wood.

9. Classification of Oils.

10. Write short note on *Saraca* and Neem.

Part B $(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a)   Explain the role of plants in the national economy.

Or

(b)   What are the important food plants listed as cereals and millets? Enumerate their important uses.

12. (a)   Write an essay about origin and history of potato.

Or

(b)   Write a brief account of various types of tropical fruits grown in India.

13. (a)   What are spices and condiments? What are their values in our daily diets?

Or

(b)   Write a brief note on the spices obtained from flowers and floral buds.

14. (a)   Give a detailed account of Sun Hemp and its importance.

Or

(b)   Write a note on distribution of Sal in India and its cultivation practices.

15. (a)   Discuss the economic importance of drying oils and semi drying oils.

Or

(b)   Write a brief note on drugs obtained from roots and other underground parts.

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R7315

Part C $(3 \times 10 = 30)$

Answer any **three** questions.

16. Write a brief account on various types of legumes grown in India with their brief economic importance.

17. Give a detailed account on different types of fruit vegetables.

18. Write a detailed account on spices obtained from roots and rhizomes.

19. Why cotton is considered to be the most important textile fibre?

20. Write about the various types of drugs obtained from medicinal plants.

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