



'সমানো মন্ত্র: সমিতি: সমানী'

**UNIVERSITY OF NORTH BENGAL**  
B.Sc. Honours 4th Semester Examination, 2022

**SEC1-P2-TEA SCIENCE**

Time Allotted: 2 Hours

Full Marks: 60

*The figures in the margin indicate full marks.*

**The question paper contains Paper-I, Paper-II, Paper-III, Paper-IV and Paper-V.  
The candidates are required to answer any *one* from *five* Papers.  
Candidates should mention it clearly on the Answer Book.**

**PAPER-I**

**PLANT DIVERSITY AND HUMAN WELFARE**

**GROUP-A**

1. Answer any *four* questions from the following: 3×4 = 12
- (a) Explain Ex-situ Conservation with examples. 3
  - (b) Write an importance of forestry. 3
  - (c) What is the full form of IUCN? Mention its objectives in the area of biodiversity. 1+2
  - (d) What do you mean by species diversity? 3
  - (e) Name three useful plants which produce wood. 3
  - (f) What do you mean by Agrobiodiversity? 3

**GROUP-B**

2. Answer any *four* questions from the following: 6×4 = 24
- (a) Give an account of important useful plants in India. 6
  - (b) Write a short note on loss of ecosystem diversity. 6
  - (c) Briefly describe the concept of sustainable development with suitable examples. 6
  - (d) What are the functions of UNESCO and NBPGR? 3+3
  - (e) Write notes: 3+3
    - (i) Loss of agrobiodiversity.
    - (ii) Ornamental plants in India.
  - (f) Write short notes on values and uses of Biodiversity. 6

**GROUP-C**

3. Answer any *two* questions from the following: 12×2 = 24
- (a) What is in-situ conservation? Describe with suitable examples. 2+10
  - (b) Give an account of biodiversity legislation and conservation. 12
  - (c) Short notes: 6+6
    - (i) Avenue Trees
    - (ii) Biodiversity awareness programmes.
  - (d) Write about the important fruit crops and their commercial importance. 6+6

**PAPER-II**

**TISSUE CULTURE**

**GROUP-A**

1. Answer any *four* questions from the following: 3×4 = 12
- (a) What is Natural disaster? 3
  - (b) Write about man made disaster. 3
  - (c) What is disaster relief? 3
  - (d) Why flood is considered as disaster? 3
  - (e) How can you reduce disaster risk? 3
  - (f) Write about disaster waste management. 3

**GROUP-B**

2. Answer any *four* questions from the following: 6×4 = 24
- (a) Describe the components of disaster relief. 6
  - (b) Write about post disaster rehabilitation. 6
  - (c) Explain the requirement of planning to reduce disaster impact on humans. 6
  - (d) Write about Disaster Management Act, 2005. 6
  - (e) Do you consider refugee problem as disaster. — Explain. 6
  - (f) How is public awareness and planning related to disaster management? 6

**GROUP-C**

3. Answer any *two* questions from the following: 12×2 = 24
- (a) Differentiate between Natural and man made disaster. Explain the management of one man made and one natural disaster. 4+8
  - (b) Write about economic, social and environmental consequences of disaster. 12
  - (c) Describe post disaster medical aid, rehabilitation and waste management. 12
  - (d) Write about cause, consequence and management of any one man made disaster. 12

**PAPER-III**

**NURSERY AND GARDENING**

**GROUP-A**

1. Answer any *four* questions from the following: 3×4 = 12
- (a) What is seed dormancy? 3
  - (b) Define Nursery. 3
  - (c) Write the objectives of seed certification. 3
  - (d) What is seed bank? 3
  - (e) What do you mean by transplanting of seedlings? 3
  - (f) Write a short note on genetic erosion. 3

**GROUP-B**

2. Answer any *four* questions from the following: 6×4 = 24
- (a) Define seed viability. Discuss the factors affecting seed viability. 6
- (b) Write brief notes on the following: 6
- (i) Green house                      (ii) Mist Chamber                      (iii) Glass house
- (c) Describe different methods of breaking seed dormancy. 6
- (d) Write a note on seed testing and certification. 6
- (e) What are different types of gardening? Discuss in brief. 6
- (f) Discuss the management of pest and diseases in gardens. 6

**GROUP-C**

3. Answer any *two* questions from the following: 12×2 = 24
- (a) Write a detailed account of Nursery management. 12
- (b) Discuss vegetative propagation in Plants. 12
- (c) Describe the detailed account of gardening and gardening operation. 12
- (d) Give a labelled diagram of structure of seed. Write the causes of seed dormancy. 4+4+4  
Discuss the methods to break the dormancy.

**PAPER-IV**

**FRESH WATER AND FISH CULTURE**

**GROUP-A**

1. Answer any *four* questions from the following: 3×4 = 12
- (a) What are the purposes of aquaculture? 3
- (b) Write the scientific name of three major carps. 3
- (c) Write about the water temperature for carp culture. 3
- (d) Give a short introduction about aquatic insects. 3
- (e) Write about the Immune System of Fishes. 3
- (f) Write about characteristics of fish stock population. 3

**GROUP-B**

2. Answer any *four* questions from the following: 6×4 = 24
- (a) What are the advantages of finfish culture? 6
- (b) Write a note on the factors influencing feeding of fishes. 6
- (c) Write a note on Bacterial community in ponds. 6
- (d) What are the advantages of formulated feed? 6
- (e) What are sources of infectious diseases? Write about the Natural resistance of fish to prevent infectious diseases. 2+4
- (f) Write about the principles of fish health management. Draw the schematic diagram of the stress response in fishes. 2+4

**GROUP-C**

3. Answer any *two* questions from the following: 12×2 = 24
- (a) Write in detail about the basic consideration in the selection of species for fish culture. 12
- (b) Write in detail about the biology of important Airbreathing fishes. 12
- (c) Write a note on common freshwater aquatic weeds. 12
- (d) Write in detail about Bundh Breeding in carps. 12

**PAPER-V**

**INTELLECTUAL PROPERTY RIGHTS**

**GROUP-A**

1. Answer any *four* questions from the following: 3×4 = 12
- (a) What is the difference between GI and trade marks? 3
- (b) Write short note on trade mark. 3
- (c) What do you mean by plant variety protection? 3
- (d) Write a brief account on patent copy right. 3
- (e) Write a brief note on ownership of copyright. 3
- (f) What do you mean by Traditional Knowledge? 3

**GROUP-B**

2. Answer any *four* questions from the following: 6×4 = 24
- (a) Write in detail about the procedure of registration and term of protection for Geographical Indication (GI). 6
- (b) Briefly explain about IPR in India. 6
- (c) What are the procedures for registration of novel and original design? 6
- (d) Give a brief account on elements of patentability. 6
- (e) Write a short note on logos and signatures. 6
- (f) Write in detail about the right and duties of patentee. 6

**GROUP-C**

3. Answer any *two* questions from the following: 12×2 = 24
- (a) Explain in detail about different kinds of marks (brand names, logos, signatures, symbols, well known marks, certification marks and service marks). 12
- (b) What are the procedures for registration for plant variety protection and explain its effect of registration? 12
- (c) Explain the effects of registration of Geographical Indication and explain its term of protection. 12
- (d) Explain different kinds of copyrights with respect to its terms of protection and licence. 12

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