



'সমানো মন্ত্র: সমিতি: সমানী'

UNIVERSITY OF NORTH BENGAL

B.Sc. Honours 3rd Semester Examination, 2021

SEC1-P1-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

BIOFERTILIZERS AND ORGANIC FARMING

GROUP-A

1. Answer any *four* questions from the following: 3×4 = 12
- (a) Name three mulching materials. 3
 - (b) Name three biopesticides. 3
 - (c) Name three Nitrogen fixing bacteria. 3
 - (d) What do you mean by vermicomposting? 3
 - (e) Name few botanicals and mentioned the plant name from which it derives. 3
 - (f) What do you mean by green manuring? 3

GROUP-B

2. Answer any *four* questions from the following: 6×4 = 24
- (a) Write a note on soil nutrient management. 6
 - (b) Write a note on different types of traps used in crop cultivation. 6
 - (c) Write a note on sex pheromones. 6
 - (d) Give detailed account on Municipal Solid Waste composting. 6
 - (e) Write a note on soil rehabilitation. 6
 - (f) What is the full form of MRL? What do you mean by quality consideration? Why quality control is important in organic farming? 1+2+3

GROUP-C

3. Answer any *two* questions from the following: 12×2 = 24
- (a) What is biofertilizer? Why should we use it? What are the benefits of it? What are the advantages of it? What are the precautions should be taken for using biofertilizers? 1+2+3+2+4
 - (b) Describe in detail about IPM. 12
 - (c) Give detailed account of biopesticides and their mode of action. 12
 - (d) Give detailed account of the importance of organic Carbon in farming. 12

PAPER-II

TISSUE CULTURE

GROUP-A

1. Answer any *four* questions from the following: 3×4 = 12
- (a) Write about tissue culture media. 3
 - (b) Write about importance of tissue culture. 3
 - (c) Briefly describe surface sterilization. 3
 - (d) What are the steps for micropropagation? 3
 - (e) Describe the process of selection of explants. 3
 - (f) Write about media supplements in tissue culture. 3

GROUP-B

2. Answer any *four* questions from the following: 6×4 = 24
- (a) What is organogenesis? Describe the process. 6
 - (b) Briefly describe the concept of totipotency. 6
 - (c) Write the protocol of haploid cell culture. 6
 - (d) Describe the concept of somatic hybridization. 6
 - (e) What is cytodifferentiation? 6
 - (f) What are the advantages and limitations of micropropagation? What are the advantages of conventional propagation? 6

GROUP-C

3. Answer any *two* questions from the following: 12×2 = 24
- (a) What is the importance of protoplast fusion in tissue culture? Describe different methods for protoplast fusion. 4+8
 - (b) What do you mean by artificial seeds? Describe the process of raising artificial seeds. 4+8
 - (c) What are the advantages and limitations of somatic hybridization? Describe the process. 6+6
 - (d) Describe callus. Write the protocol for raising plantlets via callus. 2+10

PAPER-III

MEDICINAL PLANTS AND ETHNOBOTANY

GROUP-A

1. Answer any *four* questions from the following: 3×4 = 12
- (a) Write the role of Botanic Garden. 3
 - (b) Define Ethnobotany. Who coined the term Ethnobotany and in which year? 1+1+1
 - (c) Write the red list criteria of threatened plants. 3
 - (d) What are the major objectives of Ethnobotany? 3
 - (e) Name three endemic medicinal plant of India. 3
 - (f) What is the importance of Herbarium? 3

GROUP-B

2. Answer any **four** questions from the following: 6×4 = 24
- (a) Discuss how ethnobotany can be used as a tool to protect interests of ethnic groups. 6
- (b) What do you understand by Intellectual Property Right (IPR)? Explain briefly the importance of Traditional Knowledge in modern life. 3+3
- (c) Explain how sacred grove is important for the conservation of plant genetic resources. 6
- (d) Write the significance of *Cinchona* as a potential medicinal plant. 6
- (e) Write short notes on: 3+3
- (i) Endangered taxa, (ii) Forest Management.
- (f) Write the scientific names with families of plants belonging to the following categories: 2×3 = 6
- (i) Fibres, (ii) Spices, (iii) Oils.

GROUP-C

3. Answer any **two** questions from the following: 12×2 = 24
- (a) What do you mean by folk medicine? Write its applications in ethnobotany. 2+10
- (b) Discuss the role of Ex-situ Conservation in protecting endangered medicinal plants. 12
- (c) Write the significance of the following medicinal plants: 6+6
- (i) *Curcuma longa*, (ii) *Ocimum sanctum*.
- (d) Write short notes on the following: 6+6
- (i) Biopiracy, (ii) Ethnic communities of India.

PAPER-IV

SENSORY EVALUATION AND QUALITY CONTROL

GROUP-A

1. Answer any **four** questions from the following: 3×4 = 12
- (a) What are the sense organs in human?
- (b) Give the reason behind briskness of tea?
- (c) Describe the volatile flavor components in tea.
- (d) What do you mean by discriminatory test?
- (e) Why TR, TF ratio is important for the manufacturing of black tea?
- (f) What are e-noses and e-tongues?

GROUP-B

2. Answer any **four** questions from the following: 6×4 = 24
- (a) Write a short note on the quality control using microbiological criteria.
- (b) Briefly explain the three-class attributes plan.
- (c) Explain the role of sensory analysis.
- (d) Write a short note on ranking method.

- (e) How Tea tasting is done?
- (f) Describe the role of oxidation in the VFC formation.

GROUP-C

3. Answer any *two* questions from the following: 12×2 = 24
- (a) Give a detailed account on the threshold and discriminatory tests.
 - (b) Explain the techniques involved in sensory analysis.
 - (c) What are the ways of describing tea quality?
 - (d) What are the analytical techniques to asses tea quality?

PAPER-V

GEOGRAPHICAL MANAGEMENT SYSTEM

GROUP-A

1. Answer any *four* questions from the following: 3×4 = 12
- (a) What is GIS?
 - (b) What is mapping?
 - (c) What are the objectives of GIS?
 - (d) Name any three factors that help in the rise of GIS.
 - (e) Write the advantages of Vector model.
 - (f) What is map resolution?

GROUP-B

2. Answer any *four* questions from the following: 6×4 = 24
- (a) Write the advantages of GIS.
 - (b) Write the difficulties of Geographic analysis of data in GIS.
 - (c) Write down the merits and demerits of Raster model.
 - (d) What are the general information, that should be included in digital map?
 - (e) Write a short note on Cartographic appeal in digital mapping system.
 - (f) What are the principal functions of GIS?

GROUP-C

3. Answer any *two* questions from the following: 12×2 = 24
- (a) Discuss the components and application of GIS.
 - (b) Give a brief description on the concept of mapping in GIS.
 - (c) Briefly discuss about Geographical data sets.
 - (d) Explain the analysis of Geographical data in GIS.

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