



'समानो मन्त्रः समितिः समानी'

UNIVERSITY OF NORTH BENGAL
B.Sc. Honours 3rd Semester Examination, 2022

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 Botanicals used in Organic farming. 3
 - (b) Give a short introduction about sex pheromones. 3
 - (c) What is the need for Carbon farming? 3
 - (d) What are the benefits of Biofertilizers? 3
 - (e) Write a short note on Bird perches. 3
 - (f) Write about the importance of quality control in Organic farming. 3

GROUP-B

2. Answer any **four** questions from the following: 6×4 =24
- (a) Write about the cultural control of pest management in Tea Cultivation. 6
 - (b) Write in detail about the Bio-pesticides and their dose of application. 6
 - (c) Write about Prey-Predator model to counter pest problem. 6
 - (d) Write a note on Good Agricultural Practices (GAP) and Good Laboratory Practices (GLP). 6
 - (e) Write a note on Soil Microbes. 6

GROUP-C

3. Answer any **two** questions from the following: 12×2 =24
- (a) Write in detail about Biological Nitrogen Fixation. 12
 - (b) Write in detail about different types of traps used to control Insects in agriculture with suitable diagrams. 12
 - (c) What do you mean by Soil nutrient? Write a note on Soil micronutrient and Soil macronutrient. Write a short note on Soil conservation. 2+5+5

- (d) What is Cattle manure? What is the benefit of it? Write a note on composting of Cattle manure. 2+3+7

PAPER-II

TISSUE CULTURE

GROUP-A

1. Answer any *four* questions from the following: 3×4 =12
- (a) Write about the importance of tissue culture. 3
 - (b) Write about the media supplements in tissue culture. 3
 - (c) What is the importance of sterilization in tissue culture? 3
 - (d) What are characteristics on which selection of explants are made? 3
 - (e) Write about tissue culture media. 3
 - (f) Write about micropropagation. 3

GROUP-B

2. Write any *four* questions from the following: 6×4 =24
- (a) Explain totipotency in relation to cell culture. 6
 - (b) What is somatic hybridization? What are its advantages? 6
 - (c) What are advantages of conventional and micropropagation? 6
 - (d) Explain Cytodifferentiation in relation to plant tissue culture.
 - (e) Write the protocol for embryo culture.
 - (f) Describe the process of Organogenesis.

GROUP-C

3. Answer any *two* questions from the following: 12×2 =24
- (a) What is callus? Describe the protocol for raising plantlets through callus culture? 2+10
 - (b) Why artificial seeds are important? How artificial seeds can be produced? 6+6
 - (c) Describe the process of somatic hybridization. What are its advantages and disadvantages? 8+4
 - (d) Describe the process of protoplast fusion in tissue culture. 12

PAPER-III

MEDICINAL PLANTS AND ETHNOBOTANY

GROUP-A

1. Answer any *four* questions from the following: 3×4 = 12
- (a) Name three indigenous medicinal plants. 3
 - (b) What is folk medicines? 3
 - (c) How grafting helps in propagation? 3
 - (d) Name two in-situ conservatory. 3

- (e) What is the importance of Herbarium? 3
 (f) Name two endangered medicinal plants of India. 3

GROUP-B

2. Answer any **four** questions from the following: 6×4 = 24
- (a) Write a short note on indigenous medicinal sciences. 6
 (b) Write a role of Botanic garden. 6
 (c) Write a note on ethnic communities of India. 6
 (d) Mention the red list criteria of threatened plants. 6
 (e) What is cutting? Write the techniques of cutting? 2+4
 (f) Write the scientific names with families of plants belonging to the following categories: 2×3 = 6
- (i) Legumes (ii) Cereals (iii) Spices

GROUP-C

3. Answer any **two** questions from the following: 12×2 =24
- (a) Write the role of in-situ conservatories in protecting medicinal plants. 12
 (b) Write the significance of the following medicinal plants: 6+6
- (i) *Azadirachta indica*
 (ii) *Aloe vera*.
- (c) What are the roles of ethnic groups in conservation of plant genetic resources? 12
 (d) Discuss how ethnobotany can be used as a tool to protect interests of ethnic groups. 12

PAPER-IV

GEOGRAPHICAL MANAGEMENT SYSTEM

GROUP-A

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

GROUP-B

2. Answer any **four** questions from the following: 6×4 =24
- (a) Briefly discuss the advantages of GIS.
 (b) Write down the merits and demerits of Raster model.
 (c) Write the problems of Geographic analysis of data in GIS.
 (d) Write a short note on Cartographic appeal in digital mapping system.

- (e) What are the principal functions of GIS?
- (f) Which type of general informations should be included in digital map?

GROUP-C

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

PAPER-V

SENSORY EVALUATION AND QUALITY CONTROL

GROUP-A

1. Answer any *four* questions from the following: 3×4 = 12
- (a) What is the ratio of TF and TR in black tea and describe its importance? 1+2
 - (b) Describe the role of TF in the black tea quality.
 - (c) What do you mean by scaling of responses?
 - (d) Write a short note on ranking method.
 - (e) Briefly explain the three class attributes plan.
 - (f) What do you mean by flavour attributes?

GROUP-B

2. Answer any *four* questions from the following: 6×4 = 24
- (a) Briefly explain discriminatory test.
 - (b) Describe the method of tea tasting.
 - (c) Explain the role of GC describing tea quality.
 - (d) What is threshold test? Describe its importance. 2+4
 - (e) Describe the role of polyphenol oxidase in the method of oxidation of black tea.
 - (f) Why e-noses and e-tongues are useful to assess tea quality?

GROUP-C

3. Answer any *two* questions from the following: 12×2 = 24
- (a) Give a detailed account on the quality control using microbiological criteria.
 - (b) Give a complete description on the chemical composition of black tea and emphasis the role of relevant compounds in the sensory evaluation.
 - (c) Describe the manufacturing process of Oolong tea.
 - (d) Give a detailed account on the different analytical techniques used to assess tea quality.

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