



'समानो मन्त्रः समितिः समानी'

UNIVERSITY OF NORTH BENGAL

B.Sc. Honours 3rd Semester Examination, 2023

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

BIOFERTILIZER AND ORGANIC FARMING

1. Answer any **four** from the following: 3×4 = 12
 - (a) Write about sex pheromones. 3
 - (b) Write about carbon farming. 3
 - (c) Write about biodynamics. 3
 - (d) What do you mean by good agricultural practice? 3
 - (e) Write about bird perches. 3
 - (f) Write about symbiotic and non symbiotic nitrogen fixers. 3

2. Answer any **four** from the following: 6×4 = 24
 - (a) Write about the requirement of organic farming. 6
 - (b) Write about traps used in agriculture. 6
 - (c) Write about prey-predator model to counter pest problem. 6
 - (d) Differentiate between soil micro and macronutrients. 6
 - (e) Write about the quality consideration, certification and accreditation process of organic farming. 6
 - (f) Write a note on compost. 6

3. Answer any **two** from the following: 12×2 = 24
 - (a) Give in detail the concept of IPM. 12
 - (b) What are biofertilizers? Write a note on biofertilizers. 2+10
 - (c) Give an account on vermicomposting. 12
 - (d) Write a descriptive note on biological N₂ fixation.

PAPER-II
TISSUE CULTURE

1. Answer any **four** questions from the following: 3×4 = 12
- (a) Write about surface sterilization. 3
 - (b) Write a note on callus. 3
 - (c) What are cybrids? 3
 - (d) Write about somaclone. 3
 - (e) Write about the disadvantages of tissue culture. 3
 - (f) What Organic additives are used in media? 3
2. Answer any **four** from the following: 6×4 = 24
- (a) Write about the composition of M.S. media. 6
 - (b) Briefly describe organogenesis. 6
 - (c) Write about the importance of totipotency in tissue culture. 6
 - (d) How secondary metabolites can be produced by tissue culture? Describe. 6
 - (e) Write about the importance of tissue culture. 6
 - (f) Write a brief note on Cytodifferentiation. 6
3. Answer any **two** from the following: 12×2 = 24
- (a) Write about the application of tissue culture for the development of transgenic plants. 12
 - (b) Write about the different sterilization methods used in tissue culture. 12
 - (c) What are artificial seeds? Describe the protocol for raising artificial seeds. 2+10
 - (d) What is protoplast fusion? Write about the steps followed for protoplast fusion. Why protoplast fusion is important? 2+8+2

PAPER-III
SENSORY EVALUATION AND QUALITY CONTROL

GROUP-A

1. Answer any **four** from the following: 3×4 = 12
- (a) Write a short note on the tea catechins.
 - (b) Give a brief description on the volatile flavour component of tea.
 - (c) Write a short note on ranking method.
 - (d) Write a brief note on the role of PPO in the process of tea oxidation.
 - (e) Explain the ranking method.
 - (f) Describe the role of TR in the black tea quality.

GROUP-B

2. Answer any *four* from the following: 6×4 = 24
- (a) Briefly explain the method of tea tasting.
 - (b) Give a detailed account on the biochemical basis of tea quality.
 - (c) Briefly explain the processing of green tea.
 - (d) Write a short note on threshold test.
 - (e) Briefly explain the scaling of responses.
 - (f) Write a short note on tea polyphenols.

GROUP-C

3. Answer any *two* questions from the following: 12×2 = 24
- (a) Describe the role of chromatography for the tea quality testing.
 - (b) Give a detailed account on black tea processing.
 - (c) What do you mean by quality control of tea?
 - (d) Describe the biochemical changes during processing of black tea.

PAPER-IV

GEOGRAPHICAL MANAGEMENT SYSTEM

GROUP-A

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

GROUP-B

2. Answer any *four* questions from the following: 6×4 = 24
- (a) What are the principal function of GIS? 6
 - (b) Write a short note on Cartographic appeal in digital mapping system. 6
 - (c) Write about the advantages and disadvantages of GIS. 6
 - (d) Write down the merits and demerits of Raster model. 6
 - (e) What are the difficulties faced in analysis of GIS data? 6
 - (f) What type of informations are included in GIS map? 6

GROUP-C

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

PAPER-V

MEDICINAL PLANTS AND ETHNOBOTANY

GROUP-A

1. Answer any *four* questions from the following: 3×4 = 12
- (a) Briefly describe the objectives of Ethnobotany. 3
- (b) Write down the common and scientific names of three plants used by the tribals as food plants. 3
- (c) Name three indigenous medicinal plants with family. 3
- (d) Name two in-situ conservatory of medicinal plants. 3
- (e) Write down the roles of field work in ethnobotanical studies? 3
- (f) Name three endangered medicinal plants of India. 3

GROUP-B

2. Answer any *four* questions from the following: 6×4 = 24
- (a) What are sacred groves? How they help in ethnobotanical studies? 2+4
- (b) What is Cutting? Write the techniques of Cutting. 2+4
- (c) What is the significance of the habitat and morphology of *Azadirachta indica* in ethnobotanical practices? 3+3
- (d) Mention the red list criteria of threatened plants. 6
- (e) Briefly describe the role of ethnic groups in conservation of plant genetic resources. 6
- (f) Write the scientific names with families of plants belonging to the following categories: 2×3 = 6
- (i) Beverages (ii) Legumes (iii) Oil

GROUP-C

3. Answer any *two* questions from the following: 12×2 = 24
- (a) What is biopiracy? How it is related to ethnobotany? 3+9
- (b) Mention the significance of *Gloriosa superba* and *Indigofera tinctoria* in ethnobotanical practices. 6+6
- (c) Mention the name of one ethnic group or tribal of India and describe their life style. 2+10
- (d) What are the roles of *Rauvolfia serpentina* and *Withania somnifera* in modern medicine? 6+6

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