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(NEP—2020)

(3rd Semester)

BOTANY (MAJOR/MINOR)

(Agroforestry, Paleobotany and Palynology)

Full Marks : 75

Time : 3 hours

The figures in the margin indicate full marks for the questions

(SECTION : A—OBJECTIVE)

(Marks : 10)

Tick (✓) the correct answer in the brackets provided :

1×10=10

1. What is the main objective of agroforestry?

- (a) Maximizing timber production ()
- (b) Promoting biodiversity ()
- (c) Integrating trees with crops for sustainable land use ()
- (d) Reducing overall agricultural productivity ()

2. Care, management and cultivation of trees is called

- (a) agroforestry ()
- (b) floriculture ()
- (c) gardening ()
- (d) silviculture ()

3. What is the name of the chemical released by the black walnut tree that exhibits allelopathy?

- (a) Tannin ()
- (b) Juglone ()
- (c) Salicylic acid ()
- (d) Auxin ()

4. A tree-crop interaction where only one benefit without affecting the other is
 (a) complementary () (b) competitive ()
 (c) supplementary () (d) None of the above ()
5. Removal of branches from the lower part of the tree crown is known as
 (a) pruning () (b) pollarding ()
 (c) lopping () (d) hedging ()
6. The geological timescale
 (a) measures the rate of landslide ()
 (b) determines the age of rocks ()
 (c) calculates the distance between tectonic plates ()
 (d) describes the history of life on earth ()
7. *Rhynia* was discovered by
 (a) Williamson and Brongniart in 1917 ()
 (b) Kidston and Lang in 1917 ()
 (c) Binney and Potonie in 1828 ()
 (d) Oliver and Scott in 1905 ()
8. *Crossotheca hoeninghausii* is
 (a) pollen-bearing organ () (b) rachis ()
 (c) frond () (d) root ()
9. Majority of pollen grains is dispersed at
 (a) 1-celled stage () (b) 2-celled stage ()
 (c) 3-celled stage () (d) 4-celled stage ()
10. Pollen dispersal is favoured by
 (a) cloudy day with low humidity ()
 (b) sunny day with high humidity ()
 (c) cloudy day with high humidity ()
 (d) sunny day with low humidity ()

(SECTION : B—SHORT ANSWERS)

(Marks : 15)

Answer/Write short notes on *five* of the following, taking at least *one* from each

Unit :

3×5=15

UNIT—I

1. Importance of multipurpose tree species
2. Homestead gardens

UNIT—II

3. Pollarding
4. Hedging

UNIT—III

5. Importance of fossil study
6. Morphological features of *Lyginopteris*

UNIT—IV

7. What is palynology?
8. Role of pollen in taxonomy

(SECTION : C—DESCRIPTIVE)

(Marks : 50)

Answer *five* questions, taking at least *one* from each Unit :

10×5=50

UNIT—I

1. What is agroforestry? Describe the benefits and constraints of agroforestry.
2+4+4=10
2. Write short notes on the following :
5+5=10
 - (a) Benefits of alley cropping
 - (b) Shifting cultivation

UNIT—II

3. Describe the tree-crop interaction illustrating the positive and negative impacts. 10
4. Define allelopathy. Describe the impact of allelopathy on agroforestry. 10

UNIT—III

5. What is fossilization? Describe the various types of fossils. 2+8=10
6. Write short notes on the following : 5+5=10
- (a) Geological timescale
 - (b) Characteristics of *Rhynia*

UNIT—IV

7. Explain the pollen wall structure with well-labelled diagram. Write down the significance of pollen wall. 7+3=10
8. What is pollen morphology? Describe the dispersal of pollen grains. 2+8=10
