

2024

( 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. The negative biochemical influence exerted by some plants is called

- (a) amensalism ( )                      (b) allelopathy ( )  
(c) allelospoly ( )                      (d) allelochemicals ( )

2. Which one of the following is a fertilizer tree?

- (a) *Tectona grandis* ( )  
(b) *Eucalyptus spp.* ( )  
(c) *Mangifera indica* ( )  
(d) *Casuarina equisetifolia* ( )

3. The oldest known agroforestry system is

- (a) alley cropping ( )  
(b) taungya system ( )  
(c) shifting cultivation ( )  
(d) home garden ( )

4. Cutting a pole tree at some height above the ground level to produce new shoots below the cut is called
- (a) thinning ( )
  - (b) lopping ( )
  - (c) pollarding ( )
  - (d) coppicing ( )
5. Horticulture operation commonly used to increase fruit production at a convenient height for harvesting is
- (a) bushing ( )
  - (b) training ( )
  - (c) bending ( )
  - (d) pollarding ( )
6. *Rhynia* belongs to a geological period of
- (a) Carboniferous ( )
  - (b) Permian ( )
  - (c) Cambrian ( )
  - (d) Devonian ( )
7. The geological time scale is a system used to
- (a) determine the age of rock ( )
  - (b) describe the history of life on earth ( )
  - (c) measure the rate of erosion ( )
  - (d) calculate the distance between tectonic plates ( )
8. The boundary between the Palaeozoic and Mesozoic era is marked by
- (a) the extinction of the dinosaurs ( )
  - (b) the first appearance of flowering plants ( )
  - (c) the formation of the Appalachian Mountains ( )
  - (d) the Permian-Triassic mass extinction ( )
9. Cytoplasm of the pollen grains is rich in
- (a) starch ( )
  - (b) proteins ( )
  - (c) minerals ( )
  - (d) vitamins ( )

10. The part of the pollen grains which is nearest to the centre of the tetrad is

- (a) polar pole ( )
- (b) polar axis ( )
- (c) distal pole ( )
- (d) proximal pole ( )

**( SECTION : B—SHORT ANSWERS )**

( Marks : 15 )

Write short notes on any *five* of the following, taking at least *one* from each Unit :

3×5=15

**UNIT—I**

- 1. Effects of shifting cultivation
- 2. Multipurpose trees

**UNIT—II**

- 3. Positive tree-crop interaction
- 4. Hedging

**UNIT—III**

- 5. Importance of fossil study
- 6. Internal structure of *Rhynia*

**UNIT—IV**

- 7. Significance of pollen wall
- 8. Importance of palynology

( SECTION : C—DESCRIPTIVE )

( Marks : 50 )

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

10×5=50

UNIT—I

1. Give a brief account on the benefits and constraints of agroforestry. 10
2. Write short notes on the following : 5+5=10
  - (a) Homestead garden
  - (b) Alley cropping

UNIT—II

3. What is allelopathy? Write down the impacts on agroforestry. 1+9=10
4. Write notes on the following : 5+5=10
  - (a) Pollarding
  - (b) Pruning

UNIT—III

5. Give a brief account on geological time scale. 10
6. Write notes on the following : 5+5=10
  - (a) Importance of fossil study
  - (b) Stem anatomy of *Lyginopteris*

UNIT—IV

7. Describe the pollen wall structure and its significance with labelled diagram. 10
8. Write notes on the following : 5+5=10
  - (a) Role of pollen morphology in plant taxonomy
  - (b) Dispersal of pollen grains

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