

Sl. No.

5411

D-VSF-L-SBA

## FORESTRY

### Paper—I

Time Allowed : Three Hours

Maximum Marks : 200

### INSTRUCTIONS

Candidates should attempt Question Nos. 1 and 5 which are compulsory, and any THREE of the remaining questions, selecting at least ONE question from each Section.

All questions carry equal marks.

Marks carried by sub-parts of a question are indicated against each.

Answers must be written in ENGLISH only.

### Section—A

1. Answer any *four* of the following (the answer should not exceed 150 words for each) :

10×4=40

- (a) Why are locality factors considered important for any silvicultural operation?
- (b) Explain the role of fire in silviculture of *Shorea robusta*.

(c) Suggest measures to rehabilitate degraded mangrove forests.

(d) What is a regeneration stock map? How is it prepared?

(e) How do we calculate the seed requirement of a species while raising nursery? Also explain the method of calculating the number of plants required per hectare for plantation.

2. (a) Define forest conversion. Explain the various situations under which conversion is advisable. Write in brief the general techniques of forest conversion. 2+4+4=10

(b) Explain the following points in relation to nursery management : 4×5=20

(i) Site selection and layout

(ii) Soil working

(iii) Methods of raising nursery stock

(iv) Plant protection measures

(v) Nursery register

(c) Briefly describe the selection system with particular reference to the following :  $2 \times 5 = 10$

(i) Character of crop produced

(ii) Felling cycle

(iii) Tending

(iv) Regeneration

(v) Advantages and disadvantages

3. (a) Define a forest type. Discuss the different forest types found along tidal swamp forests with their species composition. Give a note on how *Rhizophora racemosa* is managed in mangrove forests of Sunderban.

$3 + 12 + 5 = 20$

(b) Write short notes on :  $5 \times 2 = 10$

(i) Interrelationship between CAI and MAI

(ii) Cultural operations

(c) Differentiate between :  $5 \times 2 = 10$

(i) Exogenous dormancy and Endogenous dormancy

(ii) Artificial regeneration and Natural regeneration

4. (a) Describe the silvics of *Tectona grandis* under the following heads :  $5 \times 4 = 20$

(i) Distribution and morphology

(ii) Silvicultural characters

(iii) Silvicultural system and management

(iv) Utilization

(b) Describe the silvics of *Casuarina equisetifolia* under the following heads :  $5 \times 4 = 20$

(i) Ecology and distribution

(ii) Propagation and management

(iii) Functional uses

(iv) Pests and diseases

### Section—B

5. Answer any *four* of the following (the answer should not exceed 150 words for each) :  $10 \times 4 = 40$

(a) While selecting the species for agroforestry, the below-ground and above-ground interactions between the component species need to be considered. Discuss.

(b) Write short notes on :

(i) Tribal economy

(ii) Chola Naickans

(iii) Gujjars

(iv) Gonds

(c) Explain the various applications of geo-textiles for soil conservation.

(d) Discuss the direct use value of biodiversity.

(e) Discuss the importance of tissue culture techniques as a tool in tree improvement.

6. (a) Write short notes on : 2½×4=10

(i) Aquaforestry

(ii) Sacred groves

(iii) Water-use efficiency

(iv) Home gardens

(b) Explain the various components of a hydrological model for an agroforestry system. 10

- (c) Management challenges in urban forestry are unique as compared to other social forestry programmes. Discuss. 10
- (d) Discuss the characteristics which are shared by the diverse tribal groups all over India. 10
7. (a) Compare nutrient cycling in a natural forest, an agroforestry system and an agricultural field. Discuss how it helps to sustain soil fertility. 10
- (b) Differentiate between ectomycorrhizae and endomycorrhizae with respect to structure and function. 10
- (c) Write short notes on :  $2\frac{1}{2}\times 4=10$
- (i) Carbon sequestration
  - (ii) Riparian buffers
  - (iii) Forest decline
  - (iv) Nitrate pollution
- (d) Name the biodiversity hot spots in India. Discuss the major threats to biodiversity. 10

8. (a) Describe the regression selection method for plus tree selection in uneven-aged stands. 10
- (b) Describe the various approaches for obtaining genetically superior seed, giving advantages of each. 10
- (c) Discuss the statement, "Even in large experiments with many families, heritabilities are not estimated without error". 10
- (d) Discuss the factors to be considered for efficient recycling of harvested water. 10

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Serial No.

5007

D-VSF-L-SBB

**FORESTRY**  
**Paper—II**

*Time Allowed : Three Hours*

*Maximum Marks : 200*

**INSTRUCTIONS**

*Candidates should attempt questions 1 and 5 which are compulsory, and any THREE of the remaining questions, selecting at least ONE question from each Section.*

*All questions carry equal marks.*

*Marks allotted to parts of a question are indicated against each.*

*Answers must be written in ENGLISH only.*

**SECTION—A**

1. Answer any **FOUR** questions from the following :—

10×4

- (a) Explain the situations under which a forest becomes abnormal.
- (b) Describe reference point of diameter/girth measurement on a standing tree.

- (c) Explain various types of maps prepared by Working Plan Officer.
- (d) How is yield regulated in a forest which is worked under clear felling system ?
- (e) How is remote sensing advantageous as compared to ground surveys ?
2. (a) Discuss Smythies Safeguarding formula for annual harvest of timber from a selection forest. 20
- (b) Explain principles of height measuring instruments. 10
- (c) What is quarter girth formula ? Why is it preferred for calculation of log volume ? 10
3. (a) Define rotation and discuss different types of rotations giving suitable examples. 20
- (b) Discuss strategies and plans adopted for the treatment of catchment areas. 10
- (c) What is yield table ? How contents of yield table is utilized in forestry ? 10
4. (a) Describe how you would continue the line with the chain only, when :
- (i) Large river interrupts the chain line, and
- (ii) a forest area comes across the chain line. 20
- (b) Explain the terms :
- (i) Whole Circle Bearing, and
- (ii) Quadrantal Bearing. 10
- (c) Describe, with sketches, Suspension Bridge. 10

## SECTION—B

5. Attempt any **FOUR** questions from the following :—

10×4

- (a) List ten main bamboo species of commerce in India with their scientific names and the State of origin.
- (b) Give legal definition of forests in India. Write about the major groups of forest types of India.
- (c) Explain “adiabatic lapse rate”.
- (d) Define micro-climate giving suitable examples.
- (e) Write common and scientific names of ten tree species yielding resins and oleoresins.

6. (a) Discuss the factors that inhibit tree growth in Alkali and Saline soils. How is alkali soil managed for tree species plantation ? Write scientific names of four tree species suitable for plantation in Alkali soils. 20

(b) Describe the initial causes of secondary succession. Write various seral stages of succession leading to the development of *Shorea robusta* forests. 10

(c) How severe is the damage of *Ganoderma* in Indian Forests ? Discuss with some case history. 10

7. (a) What are the wood composites ? How they are prepared ? What are the common glueing agents used in wood composites ? 20

- (b) What are the effects of particulate air pollutants on the regeneration of a forest ecosystem ? Discuss. 10
- (c) How grazing is managed for the browsing animals ? Discuss various management options for sustainable grazing in forest. 10
8. (a) Write the constitution of National Board of Wildlife. Explain the provisions of the Sections of Wildlife (Protection) Act 1972, used to declare an area as "Sanctuary". 20
- (b) Describe the tangible and intangible benefits of forests. 10
- (c) Discuss the various common defects encountered after harvesting of the wood during stacking. 10