

FORESTRY

Paper – I

Time Allowed : **Three Hours**

Maximum Marks : **200**

Question Paper Specific Instructions

Please read each of the following instructions carefully before attempting questions :

*There are **EIGHT** questions in all, out of which **FIVE** are to be attempted.*

*Questions no. **1** and **5** are **compulsory**. Out of the remaining **SIX** questions, **THREE** are to be attempted selecting at least **ONE** question from each of the two Sections A and B.*

Attempts of questions shall be counted in sequential order. Unless struck off, attempt of a question shall be counted even if attempted partly. Any page or portion of the page left blank in the Question-cum-Answer Booklet must be clearly struck off.

All questions carry equal marks. The number of marks carried by a question/part is indicated against it.

Neat sketches may be drawn, wherever required.

*Answers must be written in **ENGLISH** only.*

SECTION A

Q1. Answer the following :

8×5=40

- (a) Write scientific names of four major tree species in each of Southern Tropical Semi-Evergreen Forests and Northern Tropical Wet-Evergreen Forests. 8
- (b) Write a brief account of the phenology, silvicultural characters and methods of regeneration for *Dalbergia sissoo*. 8
- (c) Explain the modern nursery techniques for production of quality planting stock. 8
- (d) Discuss the factors which influence the choice between natural and artificial regeneration. 8
- (e) What are the different types of grafting ? Explain 'Cleft Grafting' with neat sketches. 8

- Q2.**
- (a) Write the special characteristics of Indian Irregular Shelterwood System and differentiate it from Uniform System. 15
 - (b) What are the characteristic features of cold deserts of the Himalayas ? Write the scientific names of any five tree species of cold deserts. 10
 - (c) Discuss in detail, the silviculture of *Albizia lebbeck*. 15

- Q3.**
- (a) "Felling height and felling intensity play a major role in the sustainability of clumps of bamboo species." Comment. 10
 - (b) Explain the Alternative-Strip System and the Clear-Strip System. Write the advantages and disadvantages of Clear Felling System. 15
 - (c) What are the major causes of degradation of mangrove forests ? Discuss in brief, the methods of rehabilitation of degraded mangroves. 15

- Q4.**
- (a) Draw a schematic diagram showing altitudinal zonation of forest vegetation. 10
 - (b) Explain different grades of thinning. Discuss in brief the thinning practices adopted for teak plantations. 15
 - (c) Give a brief account of origin and natural distribution of the following : 15
 - (i) *Adina cordifolia*
 - (ii) *Cedrus deodara*
 - (iii) *Santalum album*

SECTION B

Q5. Answer the following :

8×5=40

- (a) "Agroforestry is a better land use system for climate change mitigation and adaptation." Justify. 8
- (b) Briefly discuss the aims, objectives and scope of Urban Forestry in India. 8
- (c) "Soil is an interface of air, minerals, water and life." Comment. 8
- (d) What do you mean by deforestation ? Explain the major causes of deforestation. 8
- (e) What are the objectives of tree improvement ? Explain in detail the five essential steps of tree improvement. 8

Q6. (a) Why is Participatory Rural Appraisal (PRA) technique important for planning and execution of Joint Forest Management (JFM) activities ? Explain the tools and techniques of PRA. 15

(b) Define :

- (i) Variation
- (ii) Selection differential
- (iii) Selection intensity
- (iv) Heritability

How do you increase the genetic gain for a given trait in tree breeding ? 15

(c) Write the characteristics of watershed. Explain the factors affecting watershed management. 10

Q7. (a) What are the characteristics of saline and alkali soils ? Explain the reclamation of saline and alkali soils with suitable tree species. 15

(b) List out the greenhouse gases that contribute to Global Warming. What are the effects of global warming ? Explain the role of trees and forests in combating environmental degradation. 15

(c) What are Multipurpose Tree Species (MPTs) ? Explain their role in social forestry. 10

- Q8.** (a) Name the two phases of tree improvement. As a tree breeder, how do you use these two phases simultaneously to meet the short-term demand of wood based industries and the long-term demand of establishing seed orchards for a given tree species. 15
- (b) Explain the concept of sustainable development. Discuss in brief the agenda for sustainable development. 10
- (c) What are pedogenic processes ? Explain the important processes of soil formation. 15