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.

Question Nos. **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.

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

Neat sketches may be drawn, wherever required.

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**SECTION ‘A’**

1. Answer the following:  
   8×5=40

1.(a) Justify the statement “Forests substantially check soil erosion and control run off.”  

1.(b) Comment “Forest has moderating influences on soil and air temperature.”  

1.(c) Describe important objectives of thinning. Differentiate crown thinning from ordinary thinning. Write grades of ordinary thinning.  

1.(d) Write the characteristics of Cold desert. Discuss soil working and planting techniques for Cold desert.  

1.(e) Define clear felling system. How is Saranda Sal (**Shorea robusta**) forest managed under clear-felling followed by natural regeneration?  

2.(a) Describe the silvicultural system which may be introduced to manage a plantation forest of **Azadirachta indica**.  

2.(b) Discuss in brief the Simple Coppice System. Write different types of Coppice System.  

3.(a) Write the importance of soil organic matter in forests. How is calculation of number of seedlings carried under Line, Square, Triangular and Quincunx methods of planting.  

3.(b) Describe kinds and pattern of fellings followed in Shelterwood Uniform System. Explain Uniform System which is followed to manage (**Pinus roxburghii**) forests of Himachal Pradesh.
4.(a) Write in detail the term Girdling and Pruning. Write scientific names of five trees/shrubs each for the Cold desert and Mangrove forests. 20

4.(b) Describe in brief the distribution, phenology, silvicultural characteristics, artificial regeneration and uses of the following tree species:
   (i) Tectona grandis and
   (ii) Santalum album 20

SECTION ‘B’

5. Answer the following: $8 \times 5 = 40$

5.(a) List the basic causes and kinds of variations in tree populations. 8

5.(b) Write distinguishing features of saline and alkaline soil. 8

5.(c) Provide scientific names of four potential NFTs each suitable for Tropical and Temperate conditions. 8

5.(d) Explain types of rocks based on formation and minerals based on chemical composition. 8

5.(e) Discuss the reasons for widespread use of exotics for plantations and specific advantages of exotics over native species. 8

6.(a) Define Provenance. Discuss the role of Provenance trial in tree improvement and mention different phases of a Provenance trial. 10

6.(b) Define Global Warming. Explain in brief the principle behind Greenhouse effect. Write the consequences of Global Warming on forest, wildlife and the human health. 20

6.(c) What are the objectives of carrying out EIA. Discuss sequentially, the different phases of an EIA study. 10

7.(a) Explain the role of forests in environmental conservation. 10

7.(b) How are “Environment”, “Environment pollutant” and “Hazardous substance” narrated in Environment (Protection) Act, 1986? 10

7.(c) Discuss the role of agroforestry in nutrient cycling and soil conservation. How is saline soil reclaimed? 20

8.(a) Define the seed orchard. Write types of the seed orchards. List the various aspects considered prior and after establishment of seed orchards for its management. 20

8.(b) Briefly discuss aims, objectives and scope of social forestry. Why is people’s participation must in social forestry? 10

8.(c) Define Watershed. Describe tree based models for reclamation of degraded hills. 10