

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.

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.

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.

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.

Answers must be written in ENGLISH only.

SECTION—A

1. (a) Improvement felling is not considered as a silvicultural system. Why? 8
- (b) What are the major threats to mangrove forests? 8
- (c) How is the regeneration map of moist deciduous forest prepared? 8
- (d) Explain the techniques for upgradation and hardening of nursery seedlings of *Lagerstroemia lanceolata*. 8
- (e) Discuss the significance of bamboo flowering. 8
2. (a) Differentiate between coppice with standards and coppice with reserves. Explain in detail the coppice with two rotations and pollard system. 15
- (b) Describe the characteristics of cold desert. How does choice of species play an important role in cold desert afforestation programme? How are cold desert areas afforested? 15
- (c) Explain the following :
 - (i) Selection felling
 - (ii) Regeneration felling
 - (iii) Selective felling
 - (iv) Enrichment planting 10
3. (a) How are nurseries classified in India? What is a clonal nursery? Explain the nursery technique for *Casuarina equisetifolia*. 15
- (b) What is precision silviculture? Explain the silvicultural techniques for the following :
 - (i) *Dalbergia sissoo*
 - (ii) *Eucalyptus tereticornis* 15
- (c) Is coastal rehabilitation using mangrove species a success? Explain the plantation technique for degraded mangrove forest. 10
4. (a) Explain the silvicultural practices that help in the modification of site factors in forestry. 15
- (b) Differentiate between thinning cycle and thinning intensity. Why is thinning essential for the management of forest stand? Describe the merits and demerits of French thinning. 15
- (c) What is root : shoot cutting? Write the names of five tree species which are propagated by this method. 10

SECTION—B

5. (a) How does agroforestry help to achieve the United Nations' Sustainable Development Goals? 8
- (b) How do sacred groves help in conservation of biodiversity? 8
- (c) How does watershed influence the ecology and socio-economic development of a region? 8
- (d) How does C : N ratio of plant residue in soil influence the rate of decomposition and nitrogen availability to plants? 8
- (e) Why is conventional breeding that has a much better role to play in genetic improvement of trees not given much importance in research? 8
6. (a) What are the differences between traditional agroforestry and ethno-agroforestry? Explain in brief below-ground and above-ground tree-crop interactions in agroforestry systems. 20
- (b) What are the constraints in the value chain under industrial agroforestry? 10
- (c) How do tree and shrub mass influence the mitigation of particulate matter and noise in urban settings? 10
7. (a) Explain the principles of bioengineering measures for soil and water conservation. Write in brief four common bioengineering techniques for hill and slope stabilization works using plants. 20
- (b) Explain the role of mycorrhizae in plant growth and development of forest trees. 10
- (c) Give a detailed profile of a soil showing various zones and explain the function of each soil zone. 10
8. (a) Discuss the key problems to expand tree cover in urban areas. Explain the role of urban trees in abating soil pollutants. 15
- (b) What are the objectives of progeny testing? Discuss the advantages and disadvantages of different methods of progeny testing. 15
- (c) Discuss the important considerations that are made before choosing a tree improvement approach. 10

★ ★ ★

