

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.** (a) The shoot portion of seedlings of some tree species like Sal and Sandal, under natural regeneration, keeps on drying year after year but the roots remain alive. Discuss. 8
- (b) Calculate the quantity of seeds (kg) required to establish a teak plantation over an area of 10 ha. 8
- (c) What are mangroves ? Write their ecological implications. 8
- (d) What is frost hole ? How does frost affect regeneration ? 8
- (e) Write the botanical names of three tree species each of : 8
- (i) non-coppicers,
 - (ii) poor coppicers,
 - (iii) good (fair) coppicers and
 - (iv) strong coppicers.
- Q2.** (a) Describe the seed collection and storage methods of the following tree species : 15
- (i) *Santalum album*
 - (ii) *Chukrasia tabularis*
 - (iii) *Cedrus deodara*
 - (iv) *Azadirachta indica*
 - (v) *Dalbergia latifolia*
- (b) Write the factors which affect the natural regeneration of Sal (*Shorea robusta*). Discuss the procedure to obtain natural regeneration of moist Sal forests. 15
- (c) What are accessory systems ? Describe the two-storeyed high forest system. 10

- Q3.** (a) Write the economic importance of the following tree species : 15
- (i) *Acacia catechu*
 - (ii) *Casuarina equisetifolia*
 - (iii) *Hardwickia binata*
 - (iv) *Butea monosperma*
 - (v) *Tamarindus indica*
- (b) What are the sequences of operations followed in mangrove afforestation ?
Discuss in detail the fishbone technique of mangrove plantation. 10
- (c) Who developed the Andaman Canopy Lifting Shelterwood System ?
Describe the different operations being followed in the system. 15
- Q4.** (a) What is a cold desert ? Describe the distribution pattern of cold desert species in India. How are cold desert areas afforested ? 15
- (b) What is clear felling system ? Describe the pattern of felling and methods of obtaining regeneration under clear felling system. 10
- (c) Explain the following : 15
- (i) Lignotuber
 - (ii) Root sucker
 - (iii) Vermiculite
 - (iv) Buttresses
 - (v) Ortet and Ramet

SECTION B

- Q5.** (a) Explain the role of windbreaks and shelterbelts in Agroforestry. Name two tree species for each. 8
- (b) Discuss the significance of exotics in tree improvement. Name four exotic tree species. 8
- (c) How does moisture influence the soil formation and growth of vegetation? 8
- (d) Write a note on the gender issues in Joint Forest Management (JFM). 8
- (e) Greenhouse gases result in global warming. Discuss. 8
- Q6.** (a) Discuss the role of Agroforestry in the well-being of mankind. 15
- (b) Explain the theory of humus formation predominant in forested vegetation. 10
- (c) What is deforestation? Discuss the impact of deforestation on the environment. 15
- Q7.** (a) Enlist the problems faced by the tribal communities in India. 10
- (b) Explain the benefits of watershed management. 10
- (c) (i) Define heritability and its types. How does Narrow Sense Heritability differ from Broad Sense Heritability? 10
- (ii) Discuss the scope and future of hybrids in applied tree improvement. 10
- Q8.** (a) What are biofertilizers? Enlist the factors associated with the mycorrhizal development in trees. Discuss the types of mycorrhizae. 15
- (b) Discuss the significance of variation in tree improvement. 10
- (c) What is Environmental Impact Assessment (EIA)? Describe the activities involved and general procedure in EIA. 15