

FORESTRY**Paper I****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 carried by sub-parts of a question are indicated against each.

Answers must be written in ENGLISH.

SECTION A

1. Answer any *four* of the following (the answer should not exceed 150 words for each) : *4×10=40*
- (a) Discuss the role of light in obtaining high quality of timber.
 - (b) Describe the effect of low temperature on plant growth.
 - (c) Explain the terms :
 - (i) Seeding Felling
 - (ii) Secondary Felling
 - (iii) Final Felling

- (d) Justify the statement "Control of stand density of desired species helps in production of maximum volume".
- (e) Describe the impact of felling height and felling intensity in restocking of Bamboo species.
2. (a) Write notes on the following : 4×5=20
- (i) Grading and hardening of seedlings
 - (ii) Permanent and floating periodic blocks
 - (iii) Treatment for breaking of exogenous dormancy
 - (iv) Different grades of ordinary thinning
- (b) Define "Indian Irregular Shelterwood System". Describe the application of this system to 'Sal' (*Shorea robusta*) forests in the country. What are the differences between the selection system and the Indian Irregular Shelterwood System ? 20
3. (a) Describe the characteristics of Mangrove forest. Explain the silvicultural system followed to manage the Mangrove forest. 8+12=20
- (b) Define conversion. Discuss the importance of conversion in forest management. Write differences between Coppice-with-Standards System and Coppice-of-Two-Rotations System. 4+6+10=20

4. Write phenology, regeneration and silvicultural characters of any *four* of the following species : $4 \times 10 = 40$

- (a) *Azadirachta indica*
- (b) *Pinus roxburghii*
- (c) *Tectona grandis*
- (d) *Gmelina arborea*
- (e) *Dendrocalamus hamiltonii*

SECTION B

5. Answer any *four* of the following (the answer should not exceed 150 words for each) : 4×10=40
- (a) Write on the provenance effect on seed quality of silvicultural plant species.
 - (b) Comment on the statement "Controlled pollination helps to test the genetic purity of seed."
 - (c) Describe the traditional agroforestry system practised in North-eastern India.
 - (d) Discuss the necessity and procedure for in-situ conservation of forest genetic resources.
 - (e) Write the scientific name of ten Multipurpose Tree species (MPTs) commonly planted in social forestry.
6. (a) Write notes on the following : 2×10=20
- (i) Reclamation of saline and alkaline soil.
 - (ii) Selection and breeding for resistance to diseases and insects.
- (b) Define agroforestry. Describe an agroforestry model suitable to rehabilitate degraded hills. Discuss the gains of agroforestry system. 2+10+8=20
7. (a) Explain the terms (i) Catchment (ii) Watershed and (iii) Micro-watershed. 6
- (b) Describe the role of forests in environmental conservation. 12

- (c) Discuss various approaches required to motivate the members of a tribal community to introduce social forestry plantation in their farmland. 10
- (d) Describe techniques for eco-restoration of sand dunes and water-logged waste-lands. 12
8. (a) Describe the role of micro-organisms in ameliorating soil. 10
- (b) Write short notes on the following : 6×5=30
- (i) Quick viability test of forest seeds
 - (ii) Carbon-Nitrogen ratio in forest soil
 - (iii) Damage caused by forest fire
 - (iv) Agroecological zone
 - (v) Forest leaf litter
 - (vi) Cold desert

