№ 000382 IFS-2089

B-JGT-J-GPA

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 : *4×10=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