

1.F.S-2009

Sl. No.

4437

B-JGT-J-GPB

## FORESTRY

### Paper II

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.*

*The number of marks carried by each question is indicated at the end of the question.*

*Answers must be written in ENGLISH.*

#### Section – A

1. Attempt any *four* questions from the following (not more than 150 words for each):
  - (a) Explain the concept of normal growing stock in clear felling system. 10
  - (b) What is the importance of estimating form factor of a tree? Write common formula(e) used to estimate the form factor. 10

- (c) Write the simple design and construction of timber bridges across river in the forest. 10
- (d) Write general principles of usufructs sharing under Joint Forest Management. 10
- (e) Write on the importance of stem analysis in forest mensuration. How does the stem analysis help in knowing the volume of the stand? 10
2. (a) Write the procedure to measure the height of tree in the following situations, when
- (i) observer's eye is above the top of the tree.
- (ii) observer's eye is below the base of the tree. 20
- (b) Discuss the concept and use of Horizontal Point sampling when wedge prism is used. 10
- (c) Discuss the features of electromagnetic spectrum and mention bandwidth spectral range used in remote sensing. 10
3. (a) Show the relationship between Current Annual Increment (CAI) and Mean Annual Increment (MAI) of a forest stand. 10
- (b) What is 'quarter girth' formula? How is it used in calculating the volume of a log? 10
- (c) Describe the normal forest concept for commercial plantations. 10
- (d) What do you mean by 'alpha' and 'beta' diversity and how are they measured? 10

4. (a) What are the major principles of designing roads in remote forest areas? Provide diagrams wherever necessary. 20
- (b) Distinguish between silvicultural rotation and rotation of the maximum volume production. 10
- (c) Write the salient differences between local volume table and general volume table. 10

### Section - B

5. Attempt any *four* questions from the following (not more than 150 words each):
- (a) What are ecological Pyramids? Describe any one of them. 10
- (b) What is the role of rotational and controlled grazing to overcome damage due to grazing animals? 10
- (c) Explain the application of the Indian Penal Code in Forestry. 10
- (d) Write procedure of extraction of khata and lac. 10
- (e) What are the causes for the declining vulture population in India and what are the likely adverse ecological impacts of such decline? 10

6. (a) How is the forest damage report framed in encroachment cases having nearby human settlements ? 10
- (b) Describe the role of Clonal Parks in Forestry with examples. 10
- (c) What are ecosystem energetics ? Describe the energy flow in a forest ecosystem. 10
- (d) What are Gums ? List some important gums of India along with the names of respective source trees. 10
7. (a) Why is it necessary to take up cost benefit analysis of forest plantations ? Describe the main points to be taken into consideration while conducting cost : benefit analysis of short rotation commercial species and traditional timber species. 20
- (b) Write on the present status of the composite wood industry in India. 10
- (c) Define climax. Which are the different climax types that are found in plant succession ? 10
8. (a) Classify medicinal plants on the basis of plant parts used and explain general rules of sustainable collection of medicinal plants, with suitable examples. 20
- (b) What is 'carbon trading' ? How can India reap the benefit out of it ? 10
- (c) Discuss methodologies of census of wild animals. 10