

FORESTRY

Paper – II

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.

Answers must be written in **ENGLISH** only.

Neat sketches may be drawn, wherever required.

SECTION A

- Q1.** (a) What are the challenges in implementing traditional forest working plans in tribal and forest-dependent communities ? Enlist the steps to overcome these challenges. 8
- (b) What do you mean by tree height ? Explain diagrammatically the method of height estimation on level as well as on sloping grounds using tangent method. 8
- (c) Discuss the concept of sustained yield. How is it different from progressive yield on the basis of arguments given against sustained yield ? 8
- (d) Describe Von Mantel's formula of yield regulation. Enlist its advantages and disadvantages. 8
- (e) Differentiate between yield tables and stand tables. Give objectives of stand table. 8

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- Q2.** (a) Critically examine the effectiveness of joint forest management in reconciling the goals of forest conservation and community livelihood security, in India. What institutional, ecological and socio-political challenges limit its long-term sustainability and scalability? 15
- (b) Discuss the field work to be carried out by a Working Plan Officer for the preparation of Working Plan. 15
- (c) What are cantilever bridges? Discuss the stability of cantilever bridges along with their disadvantages. 10
- Q3.** (a) Elucidate the scope and importance of forest management. How does choice of forest management objectives vary with ownership, locality, quality of forest produce and financial benefits? 15
- (b) Discuss the objectives and scope of Forest Working Plan. Give the characteristics of a good working plan. Enlist the summary of facts on which proposals are based for their preparation. 15
- (c) Explain stratified sampling and variable radius sampling methods. 10
- Q4.** (a) Give objectives of diameter and girth measurement. Discuss the comparison between tape and calliper measurements. How are tree diameter classes formed in India? 15
- (b) Discuss the environmental impact of road, tunnel and bridge construction in forest ecosystems. 15
- (c) Discuss the importance of remote sensing and GIS in forest resource monitoring and their use for better checks and production of forest resources in long-term forest working. 10

SECTION B

- Q5.** (a) What are the functional characteristics of an ecosystem ? Briefly explain the process of energy flow within an ecosystem. 8
- (b) Why is proper nomenclature crucial in studying medicinal and aromatic plants ? 8
- (c) What are the most effective strategies for balancing biodiversity conservation with sustainable resource utilization in forest ecosystems, especially in the face of climate change and increasing anthropogenic pressures ? 8
- (d) Explain (i) Water blister of teak, (ii) Gummosis of eucalyptus, (iii) Leaf crack, and (iv) Frost crack. 8
- (e) In the context of current environmental and developmental pressures, how effective are the Forest (Conservation) Act, 1980 and the Wildlife (Protection) Act, 1972 ? What are the changes needed to enhance their impact ? 8
- Q6.** (a) How do India's forest ecosystems influence the therapeutic use and conservation of medicinal and aromatic plants in Ayurveda and Unani, considering their habitat specificity, ecological distribution and botanical traits ? 15
- (b) Define carbon sequestration. Mention two natural methods and one artificial method of carbon sequestration. How does ocean water contribute to carbon sequestration ? 15
- (c) How do production and consumption patterns of forest resources influence market structures ? What methods can be employed to assess future projections for sustainable forest-based economic planning in India ? 10
- Q7.** (a) Describe the process and importance of wood seasoning. How do air and kiln seasoning methods differ ? 15
- (b) How do Indian forest policies address land use and resource management ? What reforms are needed for sustainable and inclusive forest management ? 15
- (c) How does air pollution lead to forest dieback ? Mention its causes and visible effects. 10

- Q8.** (a) Define forest ecology. Briefly describe the key parameters of forest productivity and explain the methods used to determine ecosystem productivity. 15
- (b) What are environmentally sound forest harvesting practices ? Why are they important for sustainable forestry ? 15
- (c) How do cooperatives and the private sector shape forest economics and enhance the socio-economic well-being of forest-dependent communities through sustainable resource management, value addition and livelihood generation ? 10