

# Agriculture

## Paper -I

**Time allowed : Three hours**

**Maximum Marks: 300**

The figures in the margin indicate full marks for the questions.

Answer Question Nos. 1 and 5 which are compulsory and any **three** from the remaining questions, selecting at least **one** from each Section.

### SECTION - A

1. Write a short note in about 120 words for each of the following items.  
Attempt any **five** 12x5=60
  - a. Types of forestry plantations including natural forestry.
  - b. Problem soils and its effect on the selection and production of agricultural crops.
  - c. Soil structure, soil texture and suitability of agricultural crops.
  - d. Use of fertilizers and other chemicals in agricultural crop raising and its effect on the level of productivity in perpetuity and also its pollution effects.
  - e. Multiple cropping, multistorey, relay and intercropping and their importance in relation to agricultural production.
  - f. Dry land agriculture and its limitations.
  - g. Soil sample collection techniques for testing its nutrient level.
2. What are the major Kharif and Rabi season weeds and various methods (other than manual) to control them. 60
3. Explain the importance of physical and social environment for crop distribution and production. 60
4. Write a short note on the importance and steps of farm planning and farm management. 60

## SECTION-B

5. Write notes on any **five** of the following in not more than 120 words each.  
12x5=60
- Principles behind watershed management.
  - Rural financial institutions in agricultural economy.
  - Irrigation systems based on water availability (limited and unlimited).
  - Marketing and price spread in case of agricultural produce.
  - Erosion and run-off management in hilly and foot hills lands.
  - Arresting the environmental pollution and the role of Green Tribunal.
6. What do you understand by land to lab and lab to land? Elaborate the major programmes of agricultural extension and communication. 60
7. Elaborate various types of soil and water pollution caused by industrial effluents and its impacts on agriculture. 60
8. Write a short essay on marketing and pricing of agricultural inputs and outputs 60

# Agriculture

## Paper -II

**Time allowed : Three hours**

**Maximum Marks: 300**

The figures in the margin indicate full marks for the questions.

Answer Question Nos. **1** and **5** which are compulsory and any **three** from the remaining questions, selecting at least **one** from each Section.

### SECTION - A

1. Answer any **ten** of the following in about 60 words each: 6 × 10=60
  - a. Explain the chromosome theory of inheritance giving suitable example.
  - b. Why mitochondria is called power house of the **cell**.
  - c. Importance of crossing over in crop improvement.
  - d. Significance of Back Cross method in crop improvement.
  - e. What are principle methods of fruit preservation?
  - f. Write a note on transgenic plants.
  - g. Explain the roll of plant growth regulators.
  - h. Importance of combining ability in hybrid development.
  - i. Roll of recurrent selection in crop improvement.
  - j. Explain in short about National Food Security.
  - k. Explain importance of seed inoculations of rhizobia.
  - l. Give significance of polyploidy in crop improvement.
2. Seed production and its distribution is the backbone of sustainable agriculture production. Explain 60
3. Explain the role of fruits and vegetables processing industries in enhancing agriculture income and reduction in National losses. 60

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4. Explain the role of integrated pest management to safeguard the environment and balancing the ecology. 60

### SECTION - B

5. Answer any **ten** of the following in about 60 words each :  $6 \times 10 = 60$
- Write short note on effect of photoperiodism on plant growth.
  - Explain why sulphur containing fertilizers are important for oilseed crops.
  - Write about the advantages and limitations of biological pest control.
  - Explain why molybdenum is gaining importance in gaining sustainable productivity in pulses.
  - Give importance of agro meteorology forecasting for epidemiology study.
  - Explain why transgenic crops are not gaining importance in food crops in India.
  - Explain the role of plant regulators for increasing the shelf life of fruits and vegetables.
  - Give measures for protecting crops from endemic soil borne diseases.
  - The role of tissue culture in micro propagation.
  - The role of gene libraries in genetic resources conservation.
  - Measures for bridging the gaps between dietary requirement and food supplementation in India.
  - Role of cytoplasmic male sterility in hybrid seed production
6. Describe the role and importance of biotechnology to enhance agricultural productivity and production. 60
7. Give a model of public private entrepreneurship for early dissemination of improved crop varieties. 60
8. How to prevent post-harvest losses in storage. 60