

IAS Mains Agriculture 1998

Paper-II

Section A

1. Answer any three out of the following in about 200 words each:
 - a. Explain the differences between Mitosis and Meiosis
 - b. Distinguish between RNA and DNA of a cell.
 - c. What are Mendel's laws of inheritance? Explain briefly the principles of dominance.
 - d. Explain in brief Chimera, Xenia and Metaxenia in plants.
2. Answer the following in about 200 words each:
 - a. What is hybrid vigour? How is it beneficial in crop improvement? Give examples of hybrid varieties.
 - b. What are dark and light reactions in photosynthesis?
 - c. Differentiate in detail between photosynthesis and respiration processes.
3. Answer the following in about 200 words each:
 - a. What are Gibberellins? How do they differ from auxins? Explain applications of GAS in agriculture and horticulture crops.
 - b. Compare between plant growth inhibitors and plant growth retardants with examples.
 - c. Describe importance and origin of wheat and cotton and state hybrid cotton varieties in cultivation in India.
4. Write short notes on any five of the following:
 - a. Genetic code
 - b. Back-cross
 - c. Certified seed
 - d. Genetic engineering
 - e. Short day plants and Long day plants
 - f. Tissue culture
 - g. Plant pigments
 - h. Seed dormancy

Section B

5. Answer any three out of the following in about 200 words each:
 - a. What is vermiculture? How does it differ from clean-cultivation of crops? Give advantages of vermicompost application to crops.
 - b. What are bacteria? How do they differ from fungi? Describe bacterial diseases of paddy,

- c. Explain damage done by blackstem rust of wheat, pigeon pea (arhar) wilt and sorghum (jowar) grain smut with their control measures.
- d. What are biofertilizers? Explain advantages of biofertilizers. Explain methods of using, and advantages of Azotobacter, Rhizobium and Algae in crop cultivation.

6. Answer the following in about 200 words each

- a. What is the situation of export of fruits from India? Give examples of fruits and vegetables varieties suitable for export.
- b. Describe propagation method, planting season and two methods of training of grape-vine suitable for Thompson seedless variety.
- c. Describe pests and diseases of chilli with plan protection schedule followed in central India.

7. Answer the following in about 200 words each:

- a. What are nematodes? How do plant nematodes damage crops and trees? List out five important nematode pests of crops and mention nematode management practices.
- b. Explain climate and soil requirements of sapota (chiku), santra (orange) and ber (jujube).
- c. Describe climate and soil requirements of wheat, sugarcane and rice (paddy).

8. Write short notes on any five of the following:

- a. Plant virus indexing
- b. Deficiency of vitamin A, vitamin B and iodine in human body
- c. Eco-friendly farming
- d. Greenhouse effect
- e. Green revolution
- f. Use of HNP virus in cotton plant protection
- g. Use of cultar in mango cultivation
- h. Characters of quality seed and safeguards for maintaining purity of seed.