

# IAS Mains Botany 1995

## Paper-II

### Section A

1. Answer any three of the following. Each part should be answered in not more than 200 words.
  - a. With the help of a diagram explain the ultra structure of the mitochondrion.
  - b. What is male sterility? Explain its importance.
  - c. Describe the structural variations in chromosomes.
  - d. Explain the term Crossing over and write a note on its significance.
2. What is mutation and how can it be induced? Write a note on mutation breeding with special reference to achievements made in India.
3. Answer the following questions
  - a. Discuss the modern concept of gene.
  - b. Explain the term Hybrid vigour and write about its importance.
4. Write critical notes on any three of the following:
  - i. MS Swaminathan
  - ii. Somatic hybridization
  - iii. Origin of life
  - iv. Genetic transformation

### Section B

5. Answer any three of the following. Each part should be answered in not more than 200 words.
  - a. Explain the carrier concept of ion absorption.
  - b. Write a note on green revolution
  - c. What is verbalization? Explain its importance.
  - d. What is the importance of conservation of germplasm? Briefly describe the methods used for conserving germplasm.
6. How was abscisic acid discovered? Discuss in detail the physiological role of abscisic acid.
7. Answer the following questions
  - a. Describe the important characteristics of RUBISCO and PEP carboxylase. What is the importance of these enzymes?
  - b. Discuss the role of trace elements in plant metabolism.
8. Answer the following questions

a. Write critical notes on the following:

- i. Water pollution and its control
- ii. Red-Far Red interaction

b. Write the botanical name, family, plant part from which it is obtained and uses of the following:

- i. Citronella oil
- ii. Atropine
- iii. Coco
- iv. Sugar.