

# IAS Mains Botany 1997

## Paper-I

### Section A

1. Answer any three of the following in not more than 200 words each
  - a. Describe the characters which indicate that blue-green algae are primitive and ancient members of plant kingdom.
  - b. What is retrogressive origin of Saprophytes in Bryophytes?
  - c. Describe the various types of fruiting bodies in Ascomycetes.
  - d. Describe the reproductive structure in Ectocarpus.
2. Give a concise account of the life cycle of the causal organism, symptoms and control measures of any four of the following diseases
  - a. Root knot disease of tomato
  - b. Late blight of potato
  - c. Leaf curl disease of papaya
  - d. Red rot of sugarcane
  - e. White wart of cucurbits
3. Answer the following questions
  - a. Describe different types of vascular steles in Lycopodium.
  - b. Describe sexual reproduction in Oedogonium.
  - c. Give structure of a bacterial cell.
  - d. Describe the leaf structure of Polytrichum.
4. Answer the following questions
  - a. Describe the structure of psilotum.
  - b. Describe Puri and Garg's theory of morphological nature of Marsilea sporocarp.
  - c. Write short notes on
    - i. Gemma Cup
    - ii. Endothecium
    - iii. Carposporphyte
    - iv. Apothecium

### Section B

5. Answer any three of the following in not more than 200 words each
  - a. Enumerate the primitive and advanced characters of flowers.

- c. Describe the structure of the flower of Liliaceae.
- d. Describe variations in placentation in Thalamiflorae.

6. Compare the following sets

- a. Microsporophyll of *Cycas* and *Pinus*
- b. Inflorescence in *Ficus* and *Morus*
- c. Dorsiventral and Isobilateral leaf
- d. Glandular and Amoeboid tapetum

7. Answer the following questions

- a. Describe the ovule structure at the time of pollination in *Gnetum*.
- b. Give an account of the organization of shoot apical meristem.
- c. Describe the importance of a Herbarium. Mention two major Herbaria of India.

8. Answer the following questions

- a. What are somatic hybrids? How are they produced? Discuss the significance of these hybrids.
- b. Describe the floral structure of Rosaceous giving floral diagram and floral formula.
- c. Write short notes on the following:
  - i. ICBN
  - ii. Apomixis
  - iii. Totipotency
  - iv. Heterostyly
  - v. Ultrastructure of egg apparatus