

# IAS Mains Botany 1993

## Paper-I

### Section A

1. Answer any three of the following in not more than 200 words each:
  - a. Define Bio-control. Give examples of diseases controlled using this method.
  - b. Describe the different ways by which genetic variation is brought about in bacteria.
  - c. Write an account of the different aspects of microbiology in relation to human welfare.
  - d. How viruses differ from other prokaryotes?
2. Write in detail with illustration about any four of the following diseases:
  - a. Late blight of potato
  - b. Tobacco Mosaic Virus
  - c. Tikka disease of ground-unit
  - d. Citrus canker
  - e. Loose smut of wheat
3. Answer the following questions
  - a. How would you differentiate between a leafy liverwort and a moss?
  - b. Describe the feren-like structure of Cyacas.
  - c. Write about the development eof rhizophore in Selaginella.
  - d. Write in short about:
    - i. Bars of sanio
    - ii. Centripetal and centrifugal xylem
    - iii. Pollen grains of Cycas and Ephedra
4. Answer the following questions
  - a. Write in brief about any four:
    - i. Pigmentation in algae
    - ii. hetereotrichy
    - iii. Palmelloiid stage
    - iv. Cystocarp in red algae
    - v. Diplanetism
    - vi. compatibility
  - b. Virus directs the machinery of the host for its own reproduction. Explain

- c. What are lichens? Apart from lichens, where else algae have associated with other organism?

## Section B

5. Answer any three of the following in not more than 200 words each:

- a. Why international rules of botanical nomenclature are important and when were they propounded? What are the main principles governing these rules?
- b. Discuss the role of tissue culture in production and propagation of virus-free plants.
- c. Discuss the role of biosystematics in the understanding of the taxonomy of angiosperms.
- d. What are the advantages of using plant cell culture to produce industrial compounds? Explain the term biotransformation

6. Answer the following questions

- a. What is extracellular cambium? Discuss about its activity with examples.
- b. Write note on:
  - i. Pollen development in Cyperaceae
  - ii. Embryo sac-like pollen grains
  - iii. Anther tapetum
  - iv. unorganized embryo
- c. What are pneumatophores and in what type of habitat are they found?

7. Answer the following questions

- a. Why the Compositae are regarded as the most highly evolved taxon?
- b. What is it useful in agro-forestry?
- c. How vegetation helps in control of pollution?

8. Answer the following questions

- a. What are the sources of the following? In what way are they economically important?
  - i. Ergot
  - ii. Penicillin
  - iii. Yeast
  - iv. Agar-agar
- b. Name the source and economic importance of any two:
  - i. Tea
  - ii. Arrowroot
  - iii. ...

iv. Cashew-nut

c. State the Latin names, families, morphology and specific part of the plants from which the following are obtained

i. Coir

ii. Cotton

iii. Flax

iv. hemp

v. Jute

How are the different from each other?