

IAS Mains Botany 1996

Paper-I

Section A

1. Answer any three of the following in not more than 200 words each:
 - a. Give an account of the role of microbes in industry.
 - b. Describe the process of fertilization (from pollination to gametic fusion) in angiospermic plants.
 - c. Describe the development of cyst carp in Rhodophyceae.
 - d. Trace the evolutionary trends in the gametophytes in bryophytes.
2. Answer the following questions
 - a. Describe the life cycle of a blue green algae and discuss its role in nitrogen economy of the soil. Why it is otherwise called as cyan bacterium?
 - b. Give a general account of plant viruses, their ultra structure and mode of transmission.
 - c. Describe the structure and discuss the morphological nature of the spike of Ophioglossum.
3. Give a concise account of the symptoms, disease cycle, life cycle of the causal organism and control measures of any four of the following:
 - a. Powdery mildew of wheat
 - b. Downy mildew of grapes
 - c. Early blight of potato
 - d. Bacterial blight of paddy
 - e. Yellow vein mosaic of bhindi
4. Answer the following questions
 - a. Discuss the salient features in the life cycle of Coleochaete and their evolutionary significance.
 - b. Describe the steps of dikaryon oxidation and development of basidium in Basidiomycetes.
 - c. Write short notes on the following:
 - i. Apothecium
 - ii. Elator
 - iii. Oogonial conceptacle of Fucus
 - iv. Azolla

Section B

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

- b. Describe the development of typical dicot embryo.
- c. Discuss the role of hormones in cell differentiation.
- d. Give an account of the staminate strobilus in Gnetum upto the stage of pollen germination.

6. Answer the following questions

- a. Describe anomalous secondary growth in the stems of
 - i. Aristolochia
 - ii. Dracaena
- b. What is a natural system of classification of plants? Give the outline of Bentham and Hooker's system of classification justifying that it is a natural system.
- c. Describe the development of the male cone of pinus till the germination of pollen grain

7. Answer the following questions

- a. Give an account of the characteristic features of the family Asclepiadaceae along with floral diagram and floral formula. Give botanical names of three plants belonging to the family.
- b. What are haploid plants? How do they originate? What is their utility in crop improvement?
- c. Write brief notes on the following
 - i. Periderm
 - ii. Helobial endosperm
 - iii. Protoplast
 - iv. Pinus needle

8. Answer the following questions

- a. What is micro propagation? Describe various routes by which plants are micro propagated through tissue culture.
- b. Give an account of the family Arecaceae (Palmae) with floral diagram and floral formula of any representative member. Give botanical names of five plants of the family having economic importance.
- c. Write short notes on the following:
 - i. Flower of Hibiscus
 - ii. Female gametophyte of Gnetum
 - iii. Pollen embryo sac
- d. Give brief account of the following:
 - i. Senescence

iii. Interxylary phloem

iv. Coenospecies

v. Embryo culture