

IAS Mains Botany 1996

Paper-II

Section A

1. Answer any three of the following. Each part should be answered in not more than 200 words.
 - a. Describe the sub-microscopic structure of a living plant cell. How does it differ from a prokaryotic cell?
 - b. In modern concept of evolution, natural selection and mutation are not alternative but complementary processes-Explain.
 - c. What are the forest types of India? Write the botanical names of 1. Redwood, 2. Hemp fibre, 3. Linseed, 4. Penicillium and 5. Rye.
 - d. Explain the origin of nitrogenous compounds in the soil.
2. In genetic language both divisions of meiosis are partly reductional and partly equational-Explain.
3. Distinguish between:
 - i. Gynandromorphs and Intersexes
 - ii. Transduction and Bacterial Transformation
 - iii. Deoxyribonucleic acid (DNA) and Ribonucleic acid (RNA)
 - iv. Forward mutation and Frame-shift mutation
4. What is transpiration? Discuss its importance to plant biology. Is there any difference between transpiration and evaporation?

Section B

5. Answer any three of the following. Each part should be answered in not more than 200 words.
 - a. What do you know about the molecular aspects of enzyme synthesis and its regulation?
 - b. How would you determine whether a particular trait was inherited via the nucleus or as cytoplasmic particle?
 - c. What are biospheres? What are the commonest causes for endangering the survival of species? How are the endangered species conserved?
 - d. What are the growth substances? Explain their importance in agriculture.
6. What is pollution? What are the types of pollution? What are the principal means to check pollution?
7. Write short notes on energy plantation and agrochemicals.
8. What is genetic engineering? Discuss its importance to agriculture, forestry and medicine.