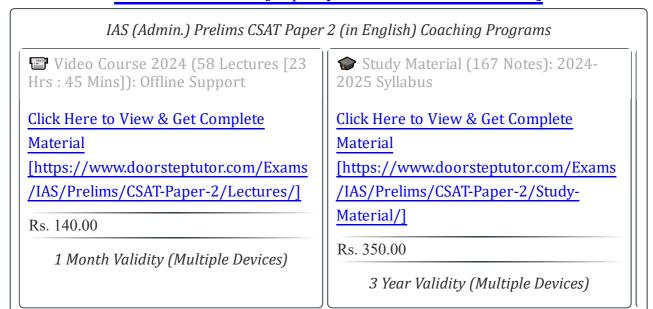
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# IAS Mains Botany Papers 1992

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## Paper-I

#### Section A

- 1. Answer any three of the following in not more than 200 words each:
  - a. How do eukaryote cells differ from prokaryote cells?
  - b. Write about different types of pollutants.
  - c. How has apomixes helped in evolution?
  - d. Write about commensalisms with examples. How does differ from ammensalism?
  - e. What are mycoherbicides? Explain with examples.
- 2. Give a concise account including control measures, of any four of the following:
  - a. Red rot of sugarcane
  - b. Green ear disease of Bajra
  - c. Yello ear rot of wheat
  - d. Bacterial blight of rice
  - e. Yellow mosaic virus
- 3. Answer the following questions
  - a. Give a short account of the moss protonema

- *b*. List three most important characters from which Pteridophytes differ from the Bryophytes.
- c. Why is Marselia sporocarp not considered a seed?
- d. Why were Bryophytes not successful on land as the vascular plants?
- 4. Answer the following questions
  - a. How will you differentiate a long shoot from a dwarf shoot in pinus?
  - b. What characters are common to cycads and Fern?
  - c. Compare the mature embryo of Pinus with that of Cycas.
  - d. Tripharic life cycles in Algae. Discuss.

#### Section B

- 1. Answer any three of the following in not more than 200 words each:
  - a. How does serology help in taxonomy of plants?
  - *b*. Explain the significance of palynological characters in systematics.
  - c. What characters are used for identification of wood
  - a. Outline the scope, usefulness and limitations of Chemotaxonomy and Numerical taxonomy.
- 2. Answer the following questions
  - a. Write briefly about the following:
    - i. Allergens
    - ii. Nodel anatomy and taxonomy
    - iii. Endothelium
    - iv. Vivipary
  - b. Distinguish between:
    - i. Solanaceae and Ranunulaceae
    - ii. Euphorbiaceae and Asclepiadaceae
    - iii. Gramineae and Musaceae
- 3. Answer the following questions
  - a. Write on causes of pollen incompatibility and suggest methods to overcome the same
  - b. Name the centres of origin and the regions of present day cultivation of any two of the following:
    - i. Black pepper
    - ii. Cloves
    - iii. Sorghum
  - c. Name the source and economic importance of any two

- i. Lac
- ii. Teak
- iii. Opium
- iv. Katha
- 4. Give a brief illustrated account of the following:
  - a. Protoplasm culture
  - b. Bordered pit
  - c. Tyloses
  - d. Wood seasoning
  - e. Transfusion tissue

### Paper-II

#### Section A

- 1. Answer any three of the following in not more than 200 words each part:
  - a. Describe the structure of thylakoid membrane in relation to its function.
  - **b**. What are the principal chromosomal aberrations and how do they alter genetic ratios?
  - c. Give briefly essential features of the development of gene concept.
  - d. Discuss in short role of mutations in evolution.
- 2. Answer the following questions
  - a. What is sex-linked inheritance? Explain with suitable examples.
  - b. Discuss various methods employed in gene mapping.
- 3. How does gene recombination take place in population? Explain genetic drift give basic principles of population genetics.
- 4. Answer any two of the following:
  - a. Write major objectives for plant breeding. Discuss the techniques of breeding used for plant improvement.
  - *b*. What are his tones? Examine their role as genetic repressors in the light of modern knowledge.
  - c. Critically evaluate the principal mechanism of organic evolution.

### Section B

- 1. Answer any three of the following in not more than 200 words for each part:
  - a. What is oxidative pentose phosphate pathway? What is its role in plant metabolism?
  - b. Mention of causes of seed dormancy. Give the methods breaking the dormancy.

- c. What is SPAC concept? Discuss he importance of this notion in plant water relations.
- d. Present a brief account of the process of nitrate reduction in plants.
- 2. How is the CO2 concentrating mechanism during photosynthesis achieved in certain plants? Explain in detail this pathway and its superiority over the C3 photosynthesis.
- 3. Answer any two of the following:
  - a. What is plant succession? Discuss the process in relation to water factor.
  - *b*. Describe the various types of forest met within India.
  - Classify growth movements. Briefly mention the hormonal control of tropic movements in plants.
- 4. Answer the following questions
  - a. Write a short account of the need and technique of a forestation programme.
  - b. Mention the complete botanical names of plants yielding the following products, their families, the morphology of the part of economic importance and the uses in each case
    - i. Cashew
    - ii. Ginseng
    - iii. Til
    - iv. Sugarcane
  - c. Describe the role of biotic factors in the determination of plant communities.