

BOTANY (Paper II)

Time Allowed : Three Hours

Maximum Marks : 300

QUESTION PAPER SPECIFIC INSTRUCTIONS

(Please read each of the following instructions carefully before attempting questions)

There are EIGHT questions divided in two Sections.

Candidate has to attempt FIVE questions in all.

Question Nos. 1 and 5 are compulsory and out of the remaining, any THREE are to be attempted choosing at least ONE question from each Section.

All questions carry equal marks.

Wherever any assumptions are made for answering a question, they must be clearly indicated.

Word limit in questions, wherever specified, should be adhered to.

SECTION 'A'

1. Answer any three of the following. Each part should be answered in not more than 200 words:
 - (a) What is the role of Golgi complex in a cell? Describe how Golgi complex is structurally and functionally interconnected with endoplasmic reticulum.
 - (b) Why was Mendel fortunate in his choice of the pea plant as the experimental material? Why are Mendel's laws important?
 - (c) "The C_3 cycle and C_4 cycle are temporally separated in CAM plants, whereas they are spatially separated in C_4 plants." Explain.
 - (d) Give the botanical name, family, cultivation and processing of any beverage plant you have studied.
2. Discuss the operon concept of gene action.
3.
 - (a) Write an account of polyploidy and its role in evolution.
 - (b) Discuss the chemical organization of a chromosome.
4.
 - (a) Write short notes on any four of the following: (i) Chemical mutagens (ii) Downs syndrome (iii) Seed dormancy (iv) Active and passive uptake of ions (v) Shifting cultivation
 - (b) "Forests are an important natural resource and need to be conserved." Discuss.

SECTION 'B'

5. Answer any three of the following. Each part should be answered in not more than 200 words:
 - (a) Write a short account of photoperiodism in plants.
 - (b) Discuss the dynamics of translocation of organic substances.
 - (c) Name the various phytogeographical zones of India and give two examples of characteristic plants from each region.
 - (d) How is the centre of origin of cultivated plants determined? Discuss the importance of such a study in relation to improvement of crop plants.
6. Describe the process of rhizobial infection and nodule development in a legume root. What is the function of leghaemoglobin in symbiotic nitrogen fixation?
7.
 - (a) Define succession and explain with the help of a suitable example.

- (b) Write a note on ecosystem under the following heads. (i) Components (ii) Energy flow (iii) Nutrient movement
8. (a) Mention any three timber-yielding plants of India. Give the botanical names, their respective families and distribution. Add a note on seasoning of wood.
- (b) With suitable example enumerate the chief characteristics and importance of the following (i) Essential oils (ii) Fatty oils