IAS Mains Agriculture 2005

Paper-II

Section-A

1. Answer any THREE out of the following, each in about 200 words: 20 × 3 = 60
    a. What are cell organelles? Give their list. Discuss the function and the significance of any two of them.
    b. Define genetic engineering. Discuss different components and its role in crop breeding.
    c. Give the definition of bio-technology. Discuss its importance in crop improvement.
    d. What is mutation? Give its classification. Describe in brief spontaneous and induced mutation.

2. Define seed and differentiate it from grain. Discuss the role of National Seeds Corporation and state seed certification agencies in production of quality seeds and its distribution. 60
3. Define Chromosome. Describe briefly the size, shape and number of Chromosomes found in crop plants. 60
4. Differentiate between any THREE of the following: 20 × 3 = 60
    a. Mitosis and meiosis
    b. Back cross and test cross
    c. Phenotype and genotype
    d. Homozygous and heterozygous

Section B

5. Answer any THREE of the following: 20 × 3 = 60
    a. Define photosynthesis. Discuss its dark and light reactions.
    b. Discuss about photoperiodism and vernalization.
    c. Describe in brief the principal methods of fruit preservation.
    d. Give the precautions in raising ornamental plants.

6. What is Integrated Pest Management? Describe the role of allelopathy to control insect-pests and plant pathogens. 60
7. Write scientific technique of raising table potato or vegetable pea under the following heads:
    a. Soil, season and climate.
    b. Row spacing, seed rate & method of sowing/planting
    c. Manuring and fertilization
    d. Yield

8. Write short notes on the following: 60
    a. Storage pests of wheat or gram and their control.

b. Khaira disease of rice.

c. Public Distribution System.

d. Water economy in potato.