

IFS-2004
AGRICULTURE

PAPER - I
SECTION A

1. Write short notes on any four of the following. Each not exceeding 150 words
(10 x 4)

- (a) Acid rain
- (b) Slow-release N-fertilizers
- (c) Herbicide safeners
- (d) Opportunity cost
- (e) Vermicompost

2 (a) Enlist the qualities of a good seed. What happens when inferior quality seed is used for sowing of a field crop?

(20)

(b) Suggest that ideal conditions which should be met while sowing of seeds in the field.

(20)

3. Give a brief account of point and non-point sources of air pollutants. Enumerate the major effects of air pollutants on vegetation. Against each of the effects, name an air pollutant which is responsible.

(40)

4. (a) What are the features of a good cropping system ?

(20)

(b) Suggest procedures for assessing suitability of different multiple cropping systems.

(20)

SECTION B

5. Differentiate between the following pairs in not more than 150 words each. Attempt any four:

(10 x 4)

- (a) Soil pH and Soil Eh
- (b) Chemigation and Fertigation
- (c) Soil permeability and Hydraulic conductivity
- (d) Diversified farming and Mixed farming
- (e) Weathering and Withering processes.

6. What are the causes of infertility of acid lateritic soils? Suggest measures for reclamation and management of such soils, and enumerate the advantages of such measures?

(40)

7. What is the role of water in plants? Give a brief account of the plant, soil and climatic criteria for scheduling irrigation.

(40)

8. What are the objectives of farm management? Suggest measures to reverse the trend of population migration from rural to urban areas in India.

(40)

PAPER - II
SECTION A

1. Answer any four of the following in about 150 words each

(a) Define heritability. Mention its laws and their significance in plant breeding.

(2 + 4 + 4 =10)

(b) Explain hybrid vigour and its exploitation in crops

(4 + 6 = 10)

(c) Differentiate between pure line selection and recurrent selection.

(10)

(d) Give a physiological importance of diffusion and osmosis.

(5 + 5 = 10)

(e) Classify plant diseases.

(10)

2. (a) Define cytoplasmic inheritance, combining ability, biotype, pest and forecasting.

(5 x 2 = 10)

(b) How a method of plant breeding differs with a breeding technique?

(10)

(c) Do the climatic requirements and the cultural practices of crop production carry the same meaning or differ with one another? Explain in brief.

(5 + 5 = 10)

(d) Give the procurement and processing constraints of food grains.

3. Write short notes on the following in about 150 words each

(10 x 4)

(a) Chromosomal aberrations

(b) Control measures of diseases of food grains during storage

(c) Raising of ornamental flower crops

(d) Importance of package of practices for cultivation of vegetable crops.

(10)

4. (a) Give time of sowing and harvesting time, seed rate and yield per hectare of crops namely wheat, cotton, potato, brinjal and carrot.

(4 x 5 = 20)

(b) Mention time of planting, number of plants required to plant one hectare, fertilizer (PKN) quantity per plant and fruit yield/hectare of guava, papaya, grapes and mango.

(4 x 5 = 20)

SECTION – B

5. Describe any four of the following in about 150 words each

(a) Mode of action of pesticides

(10)

(b) Cultivation and export significance of Chrysanthemum.

(6 + 4 = 10)

(c) How evolution takes place in nature? Give its significance.

(6 + 4 = 10)

(d) Describe factors responsible for poor seed germination and methods to improve germination.

(5 + 5 = 10)

(e) Why back cross method of breeding is used for incorporating disease resistance in plants?

How will you transfer resistance when the resistance controlling gene is recessive?

(4 + 6 = 10)

6. Write short notes on any four of the following in 150 words each

(a) Methods of breaking seed dormancy

(b) Meiosis

(c) Male sterility

(d) Plant propagation of fruit crops

(e) Overcoming weather hazards to avoid crop damage.

(4 x 10 = 40)

7. Distinguish between the two in 150 words each

- (a) Certified and registered seed.
- (b) Sex linked and sex influenced characters.
- (c) Inter-specific and inter-genetic hybridisation.
- (d) Sexual and asexual reproduction.

(4 x 10 = 40)

8. Comment on any four of the following in about 150 words each

- (a) A multi-line variety compared to a pure line variety can resist disease spread better but it lacks purity of seed.
- (b) Auxins and hormones play important role in plant development and growth.
- (c) Processed fruits and flower products fetch higher gains than the unprocessed ones, provided quality standards are maintained.
- (d) Agriculture is a gamble in the dark.
- (e) High yielding crop varieties boosted food grain production besides saving foreign exchange.

(4 x 10 = 40)