PAPER-I

SECTION A

1. Write short critical notes in about 150 words each on any four of the following:

a. Organic farming

b. VA-Mycorrhizae

c. B.O.D.

d. Soil Fertility evaluation

e. Intercropping in Sugarcane

2. Furnish a detailed account of the features of agro-climatic zones of India.

3. Justify the role of agro-forestry in meeting the human needs. How do you plan for new agro-forestry programmes for wasteland development.

4. What are the various types of soil erosion? Describe the agronomic measures of soil erosion control.

SECTION B

5. Write short critical notes in about 150 words each on any four of the following:

a. Bioherbicides

b. Soil profile

c. Stem nodulating nitrogen fixing bacteria

d. Nitrification inhibitors

e. Water harvesting in dry lands

6. What is denitrification? Discuss the factors that promote denitrification in soil.

7. Enumerate the principles of co-operation and explain them briefly. State the strengths and weaknesses of co-operative credit system.

8. Discuss the steps to be considered for a successful result demonstration and organization of method demonstration.

PAPER-II

SECTION A

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

a. Distinguish between dicliny and dichogamy. Explain their types with examples.
(5 + 5 =10)

b. What is self-incompatibility? Describe its mechanism and relevance in plant breeding.
(3 + 7 = 10)

c. Give an illustrated account of linkage of genes and its significance in crop improvement.
(5 + 5 = 10)

d. Describe multi-line varieties with their merits and demerits.
(4 + 6 = 10)

e. What are distant hybrids? Describe briefly the methods followed to produce distant hybrids and assess their use in crop improvement with suitable examples.
(2 + 8 10)

2. Answer the following in about l50 words each:

a. What do you mean by mass selection? Discuss its merits and demerits.
(3 + 7 = 10)

b. What is a clone? Describe the various characteristics of clones.
(2 + 8 = 10)

c. Briefly describe the various mechanisms of disease resistance in plants.
(10)

d. Explain the genetic basis of breeding of high-yielding varieties in rice. Indicate the present status

of the breeding programme.
(7 + 3 = 10)
3. Answer the following in about 150 words each:
a. Write in brief the role of biotechnology in plant breeding.
(10)
b. What are plant regulators? Describe their mode of action and importance in agriculture.
(10)
c. Explain polyploidy and its applications in crop improvement.
(5 + 5 = 10)
d. What is drought resistance? Give the methods Followed for screening germ plasm in crop species for drought resistance.
(2 + 8 = 10)
4. Write short notes on: (10+10+10+10=40)
a. Apomixis
b. Photoperiodism
c. Anaerobic respiration
d. Seed certification

SECTION B
5. Answer any four of the following in about 150 words each:
a. What precautions are necessary for introducing a parasitoid or a predator in a locality?
(10)
b. Name some important insect pathogenic fungi. How the insects are killed by fungal infection?
(5 + 5 = 10)
c. Mention viral diseases of rice and their management
(5 + 5 = 10)
d. Define bio-pesticides and their merits and demerits.
(5 + 5 = 10)
e. Discuss in brief about semi chemicals in pest control.
(10)
6. Answer the following in about 150 words each:
a. Describe the climatic requirements, varieties and pest management of mango and tomato.
(5 + 5 =10)
b. Discuss in brief the principles and methods of preservation of fruits and vegetables.
(5+ 5=10)
c. Compare the nutritive value of mango, apple and banana. Give three common high-yielding varieties of each of them cultivated in India.
(7 + 3 = 10)
d. Give the contribution of different categories of food crops to the total food production in India. How can the existing balance between food production and population growth be, at least, maintained in the coming decades?
(4 + 6 = 10)
7. Answer the following in about 150 words each:
a. Give a list of important pests and diseases of potato, and suggest an integrated management module for the major pest and disease complex.
(5 + 5 = 10)
b. What are prophylactic and curative measures for the stored grain pests in godowns?
(5 + 5 = 10)
c. What are insect hormones? Discuss their significance in insect pest management.

(5 + 5 = 10)

d. Give systematic position, nature of damage life history and control measures of rice gundhi bug and gram pod borer.

(5 + 5 = 10)

8. Write short notes on:

(10 + 10 + 10 + 10 = 40)

a. Protein-energy malnutrition

b. Systemic pesticides

c. Remote sensing

d. Integrated pest management