AGRICULTURE
IFS-2000 PAPER-I
SECTION A
1. Write short critical notes in about 150 words each on any four of the following:
a. Biofertilisers
b. Selectivity of herbicides
c. Intercropping
d. Potential evapotranspiration
e. Integrated plant nutrient management
2. What is watershed? Discuss the objectives and components of watershed management in dry land. Explain the relevance of traditional methods of watershed management in the present context.
3. Define integrated weed management. Briefly discuss the role of bioagents for weed control. Suggest an appropriate and cost effective integrated weed management system for a rainfed crop.
4. What is nutrient fixation? Briefly discuss the phosphorus and potassium fixation in soils. Explain in detail the important management practices to increase the availability and efficient use of phosphorus and potassium in soils.
SECTION B
5. Write short critical notes in about 150 words each on any four of the following:
a. Drainage coefficient
b. Small Farmers Development Agency
c. Drip irrigation
d. Open auction system
e. Jawahar Rojgar Yojana
6. Define water-use efficiency. Explain in detail appropriate measure for improving water- use efficiency in canal-irrigated and well-irrigated soils.
7. Indicate the meaning and importance of extension programmes. Briefly discuss different methods of evaluation. Critically explain the merits of evaluation of extension programmes.
8. What is farm planning? Differentiate it from farm budgeting. Explain the merits of tactical and strategic farm planning which are taken advantage by the majority of farmers.

PAPER-II
SECTION A
1. Answer any four of the following in about 150 words each:
a. What is meant by the term Photoperiodism? Classify plants according to photoperiodic response giving examples of each group.
(2 + 8 = 10)
b. Give an illustrated account of ultrastructure and function of chloroplast.
(5 + 5 = 10)
c. Describe briefly the external morphology of eukaryotic chromosome. How do they behave during zygotene and diplotene stages of meiosis?
(6 + 4 = 10)
d. What are Back cross and Test cross? Explain their significance in plant breeding.
(4 + 6 = 10)
e. Mention the structural components of albuminous and exalbuminous dicotyledonous seeds. Briefly discuss the major constraints of quality seed production.
(4 + 6 = 10)
2. Answer the following in about 150 words each:
a. Give a concise account of common method employed for breeding a typical cross-pollinated crop for higher yield.

(10)
b. How cytoplasmic inheritance differs from chromosomal inheritance? Explain cytoplasmic inheritance with the help of suitable example.
(5 + 5 = 10)
c. How can you establish that genes are arranged in linear order on the chromosomes? (10)
d. What are the causes of male sterility? How could it be exploited for varietal improvement programme?
(3 + 7 = 10)
3. Answer the following in about 150 words each:
a. Distinguish between C3 and C4 plants. Why are C4 plants considered photosynthetically more efficient? (6 + 4 = 10)
b. Define Respiratory Quotient (R.Q.). With the help of suitable chemical reactions show where R.Q. will be 1, > 1, < 1 and α. (2 + 8 =10)
c. Explain the theories of ascent of sap. How can you prove that translocation of sap takes place through xylem tissue. (7 + 3 = 10)
d. State how IAA can be distinguished from GA3 by their specific action on higher plants. Describe the role of ISA in Agriculture. (4 + 6 = 10)
4. Write short notes on: (10 + 10 + 10 + 10= 40)
a. CAM metabolism
b. β-oxidation of fat
c. Storage of potato tuber
d. Vernalisation

SECTION B
5. Answer any four of the following in about 150 words each:
a. What do you understand by biological control? How can you aim at biological control to check rice pests under Indian situation?
(3 + 7 = 10)
b. What type of mouth parts does a boring insect have? How can knowledge of mouth parts be helpful in chemical control of insects?
(3 + 7 = 10)
c. Why have thiocarbamate fungicides gained popularity in recent years? What are the modes of action of thiocarbamate fungicides?
(3 + 7 = 10)
d. What is a citrus canker? What are the symptoms observed? How can you control the disease?
(2 + 3+ 5 = 10)
e. What are the advantages of cutting over the seeded plant in mango cultivation? How can you control
(i) Mango mealy bug, and
(ii) Red ant in mango orchard?
(4 + 3 + 3 = 10)
6. Answer the following in about 150 words each:
a. Describe the climate and soil requirement of tea, cotton and cashew.
(10)
b. Write in brief, the processing of Black tea.
(10)
c. Give a general account of storage and preservation of mushroom, mango and cabbage. What are their export potential?
(6 + 4 = 10)

d. Compare the nutritive values of rice, wheat and pea. Name four high-yielding varieties of each of them commonly cultivated in India.
(6 + 4 = 10)
7. Answer the following in about 150 words each:
a. Describe the common pests and diseases of brinjal. Suggest plant protection measures to control these pests and diseases.
(4 + 6 = 10)
b. What are pheromones? Which pheromones appear to be more effective in the control of insects? How can pheromones be used for the suppression of insect? (1 + 2 + 7 = 10)
c. Name the causal organism of powdery mildew of cucurbits. Describe the symptoms and suitable methods to control the disease. (1 + 9 = 10)
d. Name important stored grain pests of rice and pea. Discuss methods to control these pests.
(2 + 8 = 10)
.8. Write short notes on (10 + 10 + 10 + 10 = 40)
a. Micropropagation
b. Organomercurial fungicides
c. Intersex in Papaya
d. Mulching