

IFS-2005

AGRICULTURE

PAPER - I

SECTION A

1. Write short notes, not exceeding 150 words each, on any Four of the following:

(4 × 10 = 40)

- (a) Cropland ecosystem
- (b) Green manuring
- (c) Green-house effect
- (d) Training and Visit (T & V) programme
- (e) Energy plantation

2. (a) What are the harmful effects of weeds?

(20)

(b) Elucidate some traits of weeds which distinguish them from cultivated crops.

(10)

(c) Why do selective herbicides kill only target weeds and not the crop plants?

(10)

(d) Enlist the advantages of integrated weed management.

(10)

3. (a) What is the role of nitrogen in rice plant? Enumerate different types of losses of applied fertilizer-N from submerged rice soils.

(20)

(b) How can N-use efficiency be increased under submerged paddy field condition?

(20)

4. (a) What are the advantages and disadvantages of intercropping

(20)

(b) Discuss “alley cropping” and its advantages.

(20)

SECTION - B

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

(4 × 10 = 40)

- (a) Sodic and saline soils
- (b) Reserve and protected forests
- (c) Halophyte and hydrophyte

(d) Disinfection and disinfestations

(e) Law of diminishing return and Law of equimarginal return.

6. (a) What is dry land agriculture and why is it important in India?

(10)

(b) What are major problems of dry land agriculture?

(10)

(c) Enlist dry farming practices being followed in India?

(10)

(d) Suggest any five inter-croppings being followed under dry farming conditions in India.

(10)

7. (a) Name the different categories of farm labourers in India and enlist their problems.

(20)

(b) Suggest measures to improve labour efficiency on a farm in India.

(20)

8. (a) Define agricultural marketing and enlist the problems being faced in marketing of agricultural produce by the farmers in India.

(20)

(b) Suggest measures to improve agricultural marketing in India.

(20)

PAPER - II

SECTION A

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

(a) Discuss merits and demerits of mass selection. Name crops in which this method has been successfully applied.

(4+4+2=10)

(b) Differentiate between incompatibility and sterility. Name crops in which any one of the two systems has been noticed.

(6 + 4 =10)

(c) Whether plant propagation and vegetative reproduction are similar or differ with each other? Elaborate your answer.

(6 + 4 =10)

(d) Define bio-technology. Give its role in plant breeding. Name fruit crops in which this technology has been successfully used.

(2 + 4 + 4 = 10)

(e) Explain cell organelles giving their function separately.

(5 + 5 = 10)

2. (a) Define cultivar, clone, inhibition, imbibitions and crossing-over.

(2 × 5 = 10)

(b) Describe factors that affect photosynthesis in plants.

(10)

(c) Give aerobic and anaerobic respiration in plants. In case of failure of this mechanism, what would happen?

(4 + 4 + 2 = 10)

(d) What do you mean by seed certification? Give its significance in crop production. How is it done?

(2 + 4 + 4 = 10)

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

(a) Methods of breeding in self-pollinated crops.

(10)

(b) Integrated pest and disease management

(10)

(c) Polyploidy crops

(10)

(d) Handling and marketing problems of fruit crops.

(10)

4. (a) Define mutations. Do these occur in nature? How are they important in creating variability?

(2 + 4 + 4 = 10)

(b) Give cultural requirements of tomato crop in relation to:

(2 × 5 = 10)

(i) Nursery bed preparation

(ii) Method of transplanting

(iii) Fertilizer (NPK) requirement per hectare

(iv) No. of irrigations required

(v) Fruit yield per hectare

(c) Discuss the tomato varieties recommended for sowing with yield potential.

(10)

(d) Do you feel that study of Plant Physiology is essential for developing forests? Elaborate your

answer.

(10)

SECTION B

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

(a) Principles of control of plant pests and diseases.

(10)

(b) Methods of preserving fruits and vegetables.

(10)

(c) Significance of climatic factors in crop production.

(10)

(d) Compatibility of pesticides with rhizoidal inoculants.

(10)

(e) Nutritive value of vegetables in human diet.

(10)

6. Distinguish between

(a) Arid zone horticulture and Commercial horticulture

(10)

(b) Ornamental gardens and Gardening

(10)

(c) Seed dormancy and Verbalization

(10)

(d) Seed treatment and Seed certification

(10)

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

(a) Biological control of plant pests and diseases

(10)

(b) Food policies and their trade significance

(10)

(c) Physiology of seed development

(10)

(d) Transpiration and water economy

(5+5)

8. Comment on the following statements in about 150 words each:

(a) Private and public seed agencies play a significant role in quality seed production.

(10)

(b) Application of breeding methods depends on the mode of reproduction of the crop under consideration.

(10)

(c) Processing and preservation industry for fruits and vegetables has tremendous scope of expansion in India.

(10)

(d) Close linkage between scientific approach to crop production and the timely field feedback (Lab. to Land Concept) is essential to attain production targets.

(10)