AGRICULTURE

PAPER—I

Time Allowed : Three Hours	Maximum Marks : 200

QUESTION PAPER SPECIFIC INSTRUCTIONS

Please read each of the following instructions carefully before attempting questions

There are EIGHT questions in all, out of which FIVE are to be attempted.

Question Nos. **1** and **5** are compulsory. Out of the remaining SIX questions, THREE are to be attempted selecting at least ONE question from each of the two Sections A and B.

Attempts of questions shall be counted in sequential order. Unless struck off, attempt of a question shall be counted even if attempted partly. Any page or portion of the page left blank in the Question-cum-Answer Booklet must be clearly struck off.

All questions carry equal marks. The number of marks carried by a question/part is indicated against it.

Answers must be written in ENGLISH only.

SECTION—A

1. *(a)* Enlist the types of soil structure and explain the prism-like structure. 8

(b) Explain the term 'hedgerow intercropping'. Give an account of its advantages. 8

(c) Explain the biotic and abiotic factors in the ecosystem. 8

(d) How have short duration varieties of crops contributed in increasing food grains production in India? 8

(e) Calculate the residual sodium carbonate (RSC) content of the irrigation water and give comments for the use of irrigation purpose.

Given :

Carbonate (CO_3^{2-}) is 1·5 $meqL^{-1}$

Bicarbonate (HCO_3^{1-}) is 4·0 $meqL^{-1}$

Calcium (Ca^{2+}) is 2·6 $meqL^{-1}$

Magnesium (Mg^{2+}) is 2·0 $meqL^{-1}$ 8

2. *(a)* Differentiate between agroforestry and social forestry. Give an account of agroforestry systems in India. 15

(b) Describe the microbiological aspects of organic matter decomposition. 15

(c) Discuss the effects of climatic elements on crop productivity in India. 10

3. *(a)* Discuss the cultivation of wheat in respect of the following :

(i) Species

(ii) Crop rotation

(iii) Sowing time

(iv) Nutrient management

(v) Weed management 15

(b) Give the characteristics of weeds. Discuss the role of exotic weeds on biodiversity with suitable examples. 15

(c) Enlist the various ways of nitrogen losses from soil-plant system. Explain the denitrification losses of nitrogen. 10

4. *(a)* Give an account of different sources of soil and water pollution in India. 15

(b) Write short notes on the following :

(i) Agroclimatic zones

(ii) Reddening of leaf in cotton

(iii) Retting in jute

(iv) Additive intercropping

(v) Relay cropping 15

(c) Describe the causes of micronutrients deficiency in Indian soils. 10

SECTION—B

5. *(a)* Explain the steps of extension education process as per Leagans (1967). 8

(b) Describe the factors affecting the types of farming. 8

(c) How does bunding help in soil and water conservation? Enlist the different types of bunds used for conservation. 8

(d) Describe the advantages of cooperative marketing in agriculture. 8

(e) Explain the term 'critical stage of water need of crops'. Give the critical stages of water need of maize, wheat, groundnut and cotton. 8

6. *(a)* Explain the concept of M-Agriculture (M-Krishi) in extension. Give its advantages, services and applications. 15

(b) Why is farm planning necessary? Describe its limitations. 15

(c) Give the classification of gullies in soil erosion. Discuss it based on the dimension of the gully. 10

7. *(a)* Classify the irrigation water based on salinity and sodium hazards. List the crops according to their degree of salt tolerance. 15

(b) Explain watershed management and describe in detail its objectives. 15

(c) Explain the term 'contract marketing'. Give its advantages and risk factors. 10

8. *(a)* Explain the term 'irrigation scheduling'. Give the account of the factors influencing the frequency of irrigation in crops. 15

(b) Describe the characteristics of the developed agricultural market. 15

(c) Explain farm budgeting and describe its types. 10

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