INDIAN STATISTICAL INSTITUTE

Recruitment for posts of Scientific Assistant A (*Specialization: Agriculture*)

SECTION II

Syllabus for Online and Skill Tests

- **Crop Production:** Agronomic techniques of production of major agricultural and horticultural crops; Cropping systems; Agrometeorology; Growth and development of crops in adverse environmental conditions; Dryland agriculture; Weeds and their management; Soil fertility and fertiliser use; Integrated nutrient management; Sustainable land use systems; Soil, plant, water and atmosphere relationships; Principal and methods of seed production of major crops; Requirements and types of seed storage; Farm mechanisation and equipment; Tillage and Pesticide application equipment; Precision agriculture.

- **Crop Protection:** Basics of insects, mites, plant parasitic nematodes and plant pathogens; Insect and nematode ecology; Plant disease epidemiology; Major pests (including nematode pests), diseases (fungal, bacterial and viral) and disorders of major agricultural and horticultural crops; Cultural, physical, biological, biotechnological, chemical and integrated management of pests and diseases; Host plant defence; Plant-pest relationships.

- **Agricultural Chemistry and Soil Science:** Pedogenic processes and their relationships with soil properties; Rocks, minerals and other soil forming materials; Soil texture, Soil structure and classification, Bulk density and particle density of soils and porosity; Humus, Humic acid, Fulvic acid; Soil moisture, Soil erosion, Land degradation; Soil colloids, Chemical equilibria, Chemical kinetics, Clay minerals, Adsorption-desorption, Cation and Anion exchange, Soil organic matter; Essential elements in plant nutrition, Nutrient cycles in soil, Macro and micro nutrients in soil, Manures and fertilizers, Lime and gypsum requirement; Acid, Acid sulphate, Saline and Alkali soils and their management; Irrigation water quality, Major soil groups of India; Soil and water pollution; Greenhouse gases; Soil biota, Soil microbial ecology, Types of organisms, Soil enzymes, Biofertilizers, Methods of soil analysis, Instrumentation.

- **Agricultural Statistics:** Measures of central tendency and dispersion; Sampling methods; Probability distribution, Design of experiments; Correlation and regression analysis; Tests of significance; Analysis of variance; Probit analysis.

Sample Questions for the Online Test

Note: For each of the questions there are four suggested answers, of which only one is correct. You will score

4 marks for each correctly answered question,
0 mark for each incorrectly answered question, and
1 mark for each unattempted question.

1. Which of the following causes rainfall?
   (a) Condensation (b) Filtration
   (c) Evaporation and condensation (d) Evaporation

2. Ca, Mg and S are referred to as
   (a) Macronutrients (b) Micronutrients.
   (c) Secondary nutrients (d) Primary nutrients

3. The relative proportion of sand, silt and clay in soil is called

   (a) Soil texture (b) Soil aggregation (c) Soil structure (d) Soil taxonomy .

4. When the fertility gradient of an agricultural field is in two directions, the most appropriate experimental design is

   (a) CRD (b) RBD (c) Split-plot (d) LSD .

5. Onion and garlic are examples of

   (a) Rhizome (b) Corm (c) Stem tuber (d) Bulb .

6. Artificial methods of vegetative propagation includes

   (a) Cloning (b) Grafting (c) Cuttings (d) both (b) and (c) .

7. The study of the relationship between agricultural crops and environment is called

   (a) Auto-ecology (b) Agro-ecology (c) Agro-climatology (d) Agro-meteorology .

8. An insecticide having low LD 50 value indicates that it is
   (a) Highly toxic to insects (b) Less toxic to insects
   (c) Nontoxic to insects (d) Moderately toxic to insects

9. Bacterial leaf blight of rice is caused by
   (a) Pseudomonassolanacearum (b) Xanthomonas campestrispvcitri
   (c) Xanthomonas oryzae (d) Xanthomonas campestrispvcampestris

10. A pest restricted to a particular locality is called

    (a) Sporadic pest (b) Regular pest (c) Key pest (d) Endemic pest .
