C–HENT–N–ZHQHB

AGRICULTURE

PAPER—II

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 chronological 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. Answer the following in about *150* words each : 8×5=40

(a) Define biotechnology and its scope and significance in agriculture and industrial revolutions. 8

(b) Describe various types of changes in chromosome numbers in plants. 8

(c) What are gibberellins? Discuss their role in the life cycle of a plant. 8

(d) Differentiate between Breeder's seed and Nucleus seed. Describe the specific method adopted for the maintenance of purity of seed. 8

(e) Discuss critically the plant virus-vector relationship in relation to transmission of plant virus diseases with suitable examples. 8

2. Distinguish between the following : 10×4=40

(a) Growth and Development in plants 10

(b) Gametogenesis and Sporogenesis 10

(c) Photosynthesis and Photorespiration along with their chemical reactions 10

(d) Natural selection and Artificial selection of plants 10

3. Answer the following : 10×4=40

(a) What are genes? How are the classical and modern concepts of genes different? Discuss. 10

(b) Discuss male sterility. Enlist various types of male sterility found in plants and describe briefly about cytoplasmic genetic male sterility. 10

(c) Describe the process of senescence and the factors responsible for it. 10

(d) Enumerate briefly the role of public and private sectors in seed production. 10

4. Write short notes on the following in about *200* words each : 10×4=40

(a) Post-harvest changes in fruits and vegetable products 10

(b) Insect viruses in the management of lepidopteran insects 10

(c) Red rust of tea, its causal agent, diagnostic symptoms, mode of spread and management 10

(d) NEPO and NETU viruses and their differences 10

SECTION—B

5. Answer the following in about *150* words each : 8×5=40

(a) What is a balance diet? Discuss the importance of pulses and vegetables in human nutrition. 8

(b) Briefly discuss the package of practices for the commercial production of papaya. 8

(c) Enlist five (5) important diseases of banana. Discuss the nature of damages caused and their integrated management. 8

(d) What do you understand by asexual method of propagation? Discuss briefly the advantages and disadvantages of asexual propagation. 8

(e) Blister blight of tea is a serious problem in the tea plantation of Darjeeling district of West Bengal, but not at all a problem in the tea-processing factories. Discuss critically. 8

6. Give suitable reasons for the following statements and support your answer with suitable examples : 10×4=40

(a) Why is it important to identify the pests and its nature of damages before implementing management practices? 10

(b) Potato tubers become green and bitter in taste, when exposed to sunlight during cultivation. 10

(c) Products of cutting and grafting are genetically uniform in plants. 10

(d) Quick and low temperature freezing is not recommended in case of fresh tomatoes. 10

7. Answer the following : 10×4=40

(a) Discuss the soil and climatic requirements, varieties of seed tuber, sowing time, manure and fertilizer application and insect-pests management of commercial cultivation of potato. 10

(b) Explain the production technology for commercial cultivation of marigold and gladiolus. 10

(c) What is the role of pheromone for the control of insect-pests? Discuss. 10

(d) Define plant quarantine. Why the potato tubers grown in Darjeeling district of West Bengal cannot be transported to the other States of India for seed purposes? 10

8. Write short notes on the following : 10×4=40

(a) Classification of herbicides on the basis of their chemical nature 10

(b) Global warming potential of greenhouse gases in agriculture 10

(c) Landscape gardening in India and their future scope for tourists attraction 10

(d) ELISA method application to determine the pesticide residues and its advantages and disadvantages 10

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