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 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. Answer the following : 8×5=40

(a) What is the 'powerhouse' of a cell? Describe its structure and label.

(b) Describe the Mendel's law of inheritance by giving suitable example.

(c) Describe the process of certified seed production in field crops.

(d) Describe the conditions to maintain the seed quality during post-harvest processing and storage.

(e) Discuss the role of metal ions in enzyme activity.

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

(a) Seed production in Self-pollinated and Cross-pollinated crops (giving suitable examples)

(b) Heterosis breeding and Mutation breeding

(c) Ribonucleic acid and Deoxyribonucleic acid

(d) Enzymes and Plant pigments

3. Answer the following : 10×4=40

(a) Describe the methods and significance of maintenance breeding in seed production system.

(b) "C_4 plants are more water-use efficient compared to C_3 plants." Explain by citing suitable examples.

(c) "Transpiration is a necessary evil." Explain and justify the statement.

(d) Describe the significance of male sterility in hybrid seed production. Mention different types of male sterility.

4. Answer the following : 10×4=40

(a) Illustrate the plant and animal cells.

(b) What is the significance of β-oxidation in germinating seeds?

(c) Discuss orthodox and recalcitrant seeds with examples.

(d) Write down the yield components and parameters of cereals, pulses and oilseeds.

SECTION—B

5. Answer/Write on the following : 8×5=40

(a) Discuss the process of minimizing the pesticide residue effects in vegetables.

(b) Seed plot technique for virus-free potato seed production

(c) Describe the physiological role of gibberellic acid in seed germination process.

(d) Mango malformation

(e) Importance of carrot and guava in human nutrition

6. Answer the following : 10×4=40

(a) Calculate the amount of Malathion 50 EC to treat 50 hectares of flower crop @ 800 litres per hectare. The concentration of spray material to be used is 0·01%.

(b) Discuss the problems involved in marketing of vegetables and fruits.

(c) What is pruning? Discuss its principles and significance in fruit crops.

(d) What is biological control of plant diseases? Discuss its principles. Name the important biocontrol agents and their application against important diseases of crops.

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

(a) Fungal wilt and Bacterial wilt of vegetables

(b) Insect parasitoids and Predators

(c) Formal and Informal gardens

(d) Seed germination and Seed dormancy

8. Answer the following : 15+15+10=40

(a) Describe the food production constraints in Indian agricultural system. 15

(b) Mention the important storage insects of pulses and cereals, and their management practices. 15

(c) Describe the principles and methods of post-harvest management of important fruits. 10

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