

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) "C₄ plants are more water-use efficient compared to C₃ 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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