

AGRICULTURE (Paper II)

Time Allowed : Three Hours

Maximum Marks : 300

QUESTION PAPER SPECIFIC INSTRUCTIONS

(Please read each of the following instructions carefully before attempting questions)

There are EIGHT questions divided in two Sections.

Candidate has to attempt FIVE questions in all.

Question Nos. 1 and 5 are compulsory and out of the remaining, any THREE are to be attempted choosing at least ONE question from each Section.

The number of marks carried by a question/part is indicated against it.

Wherever any assumptions are made for answering a question, they must be clearly indicated.

Word limit in questions, wherever specified, should be adhered to.

SECTION 'A'

1. Comment on the following in about 150 words each:

4×15=60

- (a) Various types of gene linkage and their detection.
- (b) The success story of “Juvenile hormone” (J.H.) in insect pest management.
- (c) Various types of apomictic seedlings and their use in plant propagation.
- (d) The physiological processes mediated by phytochrome pigment.

2. Answer the following in about 200 words each:

- (a) How do phytophagous insects select their host? Explain the role of plant chemicals in host selection. 20
- (b) How can the pest faunal complex be managed in paddy? 20
- (c) Describe in brief the preventive and curative methods for the control of storage pests. 20

3. Answers to each of the following should be brief and to the point:

- (a) Discuss the types of self-incompatibility and their relevance in plant breeding. 15
- (b) Describe the methods of transfer of two or more characters to a single recurrent parent. 15
- (c) In what situations are different recurrent selection methods used and compare their effectiveness. 15
- (d) Outline the mechanism of opening and closing of stomata with reference to K⁺ ion transport mechanism. 15

4. Answer the following in about 200 words each:

- (a) Bring out the extent and scope of rose cultivation in India with special reference to export. 20
- (b) Explain the present status of arid fruit culture in India. Describe major constraints in fruit productivity in arid regions. 20
- (c) Briefly describe the various popular designs of ornamental gardens. 10
- (d) Briefly describe the various methods of seed-testing for seed certification. 10

SECTION 'B'

5. Answer the following in about 150 words each:

4×15=60

- (a) What are orthodox and re-calcitrant seeds? What are the different phases associated with germination of orthodox seed.
- (b) Bring out the diagnostic symptoms, pathogen, pre-disposing factors and management of late blight of potato.
- (c) Describe the origin and production of aneuploids.
- (d) What are the principles of preservation of fruits and vegetables? Briefly describe the method for preparation of guava jelly.
6. Answer the following in about 200 words each:
- (a) What are synthetic pyrethroids? Explain their mode of action. **20**
- (b) Differentiate stress from strain. Give an account of morphological adaptive changes in plants to survive drought situation. **20**
- (c) Define oxidative phosphorylation and photo-phosphorylation. Distinguish between non-cyclic and cyclic electron transport process of photosynthesis. **20**
7. Answer the following in about 200 words each: **3×20=60**
- (a) What are different types of entomogenous virus? Describe in brief Nuclear Polyhydrosis Virus (NPV) and its merits and demerits in pest management.
- (b) Discuss in brief the points to be considered for cost and return analysis in fruit cultivation.
- (c) Define vinegar. Describe its classification and bring out the methods of its preparation.
8. Write short notes on the following in about 150 words each: **4×15=60**
- (a) Molecular markers and transgenics.
- (b) Insecticidal poisoning, symptoms and treatment.
- (c) The influence of various spectrums of light on root development, stem growth and the maturity of fruit in fruit plants.
- (d) Temperature induced injuries in fruits and vegetables.