

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.

All questions carry equal marks.

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. Answer any three of the following in about 200 words each:
 - (a) Define biotechnology. Explain about some of the recent trends in the application of biotechnology in plant protection.
 - (b) Write about the phytochrome and its distribution in plants.
 - (c) How are hybrid seeds produced on a commercial scale? Offer your comments on terminator seeds.
 - (d) Write briefly on:- (i) Carotenoids, (ii) C₄ plants [?], (iii) Glycolysis and (iv) Osmosis and Turgor.
2.
 - (a) Write about the classification of enzymes based on their role and how is their action regulated.
 - (b) Write about the various methods of crop improvement in plant breeding.
 - (c) Explain about the causes of seed dormancy. Suggest methods of breaking seed dormancy.
3.
 - (a) Mention the different plant growth substances and write about the purposes for which they are utilised.
 - (b) Write about the functions of various parts of the cell
 - (c) How do prokaryote cell and eukaryote cell differ?
4. Write short notes on any four of the following:
 - (a) Euchromatin and heterochromatin
 - (b) Basmati rice
 - (c) Imbibition
 - (d) Apomixis
 - (e) Seed quality attributes for vegetables
 - (f) Autotetraploid

SECTION 'B'

5. Answer any three of the following in about 200 words each:
 - (a) Write about the seed treatment chemicals which are used for the control of diseases and pests in agriculture with suitable examples.

- (b) Write about the mode of action of organophosphatic insecticides. Give some examples of systemic and non-systemic insecticides.
 - (c) Write about the principles and methods of preservation of fruits and vegetables and their products.
 - (d) What precautions are taken while using toxic insecticides? Also mention the safety measures and devices.
6. (a) Write about the importance of floriculture in India. Give suggestions for development of scientific floriculture in India
- (b) Mention the various insect pests of cashew with their scientific names. Write about the damage and management practices of tea mosquito in cashew orchards.
 - (c) Mention important diseases of potato with scientific names of their causative organisms. Write about the symptoms of damage and control of potato blight disease.
7. (a) Write about the microbial control of American Boll worm.
- (b) Write about the management practices of coconut black headed caterpillar.
 - (c) Write in details about the management practices of red rot and smut diseases in sugarcane.
8. Write short notes on any four of the following:
- (a) Pusa bin
 - (b) Granular pesticides
 - (c) Control of Banana wilt
 - (d) Trichoderma and Pseudomonas in disease control
 - (e) Ripening of fruits
 - (f) Problem of food security in India