

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 out of the following in about 200 words each:
 - (a) Explain the differences between Mitosis and Meiosis
 - (b) Distinguish between RNA and DNA of a cell.
 - (c) What are Mendel's laws of inheritance? Explain briefly the principles of dominance.
 - (d) Explain in brief Chimera, Xenia and Metaxenia in plants.
2. Answer the following in about 200 words each:
 - (a) What is hybrid vigour? How is it beneficial in crop improvement? Give examples of hybrid varieties.
 - (b) What are dark and light reactions in photosynthesis?
 - (c) Differentiate in detail between photosynthesis and respiration processes.
3. Answer the following in about 200 words each:
 - (a) What are Gibberellins? How do they differ from auxins? Explain applications of GAS in agriculture and horticulture crops.
 - (b) Compare between plant growth inhibitors and plant growth retardants with examples.
 - (c) Describe importance and origin of wheat and cotton and state hybrid cotton varieties in cultivation in India.
4. Write short notes on any five of the following:
 - (a) Genetic code
 - (b) Back-cross
 - (c) Certified seed
 - (d) Genetic engineering
 - (e) Short day plants and Long day plants
 - (f) Tissue culture
 - (g) Plant pigments
 - (h) Seed dormancy

SECTION 'B'

5. Answer any three out of the following in about 200 words each:
- (a) What is vermiculture? How does it differ from clean-cultivation of crops? Give advantages of vermicompost application to crops.
 - (b) What are bacteria? How do they differ from fungi? Describe bacterial diseases of paddy, acid lime and cotton with control measures.
 - (c) Explain damage done by blackstem rust of wheat, pigeon pea (arhar) wilt and sorghum (jowar) grain smut with their control measures.
 - (d) What are biofertilizers? Explain advantages of biofertilizers. Explain methods of using, and advantages of Azotobacter, Rhizobium and Algae in crop cultivation.
6. Answer the following in about 200 words each
- (a) What is the situation of export of fruits from India? Give examples of fruits and vegetables varieties suitable for export.
 - (b) Describe propagation method, planting season and two methods of training of grape-vine suitable for Thompson seedless variety.
 - (c) Describe pests and diseases of chilli with plant protection schedule followed in central India.
7. Answer the following in about 200 words each:
- (a) What are nematodes? How do plant nematodes damage crops and trees? List out five important nematode pests of crops and mention nematode management practices.
 - (b) Explain climate and soil requirements of sapota (chiku), santra (orange) and ber (jujube).
 - (c) Describe climate and soil requirements of wheat, sugarcane and rice (paddy).
8. Write short notes on any five of the following:
- (a) Plant virus indexing
 - (b) Deficiency of vitamin A, vitamin B and iodine in human body
 - (c) Eco-friendly farming
 - (d) Greenhouse effect
 - (e) Green revolution
 - (f) Use of HNP virus in cotton plant protection
 - (g) Use of cultar in mango cultivation
 - (h) Characters of quality seed and safeguards for maintaining purity of seed.