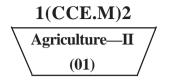
- Describe the process of bulk production of *Trichoderma* sp. 6. and its utility in control of various plant diseases.
 - Explain the various steps involved in the development of new apple orchard.
 - Explain the package of practices in saffron cultivation in Kashmir 45
- Answer any **five** of the following:
 - BPH and its control in Paddy.
 - What is virus and how they replicate?
 - Saphrophytes and their role in farming.
 - Parasitoids and their utility.
 - Chromosomal aberrations and consequences.
 - (vi) Gene interaction.
 - (vii) Great Bengal famine.
 - Give the causal agent of following pests/diseases and their control measure (any five):
 - Rust disease of coffee
- (ii) Apple Scab
- Downy mildew of maize (iv) Rhizome rot of ginger
 - (v) Late blight of potato
- (vi) Red leaf of cotton
- (vii) Citrus dieback
- (viii) Boll Shedding in cotton.

45

- Write short notes on any **five** of the following:
 - Biological control of pests and diseases.
 - Plant quarantine and its importance.
 - Plant growth hormones and their utility.
 - Transpiration is inevitable for plant growth.
 - Seed dormancy and how to overcome?
 - (vi) Boom and bust cycle in plant diseases.
 - (vii) Cross protection in plant disease management. 45

Total No. of Printed Pages: 4

Roll No.



Time: Three Hours1

[Maximum Marks: 300

INSTRUCTIONS

- Answers must be written in English.
- The number of marks carried by each question is indicated at the end of the question.
- (iii) The answer to each question or part thereof should begin on a fresh page.
- (iv) Your answer should be precise and coherent.
- The part/parts of the same question must be answered together and should not be interposed between answers to other questions.
- (vi) Candidates should attempt question nos. 1 and 4 which are compulsory and any four more out of the remaining questions.
- (vii) If you encounter any typographical error, please read it as it appears in the text-book.
- (viii) Candidates are in their own interest advised to go through the General Instructions on the back side of the title page of the Answer Script for strict adherence.
- (ix) No continuation sheets shall be provided to any candidate under any circumstances.
- Candidates shall put a cross (×) on blank pages of Answer Script.

- (xi) No blank page be left in between answer to various auestions.
- (xii) No programmable Calculator is allowed.
- (xiii) No stencil (with different markings) is allowed.
- Define any **ten** of the following:
 - Marker Assisted Breeding
 - Protein Synthesis
 - (iii) Anticodon
 - (iv) Mutation
 - (v) Acclimatization
 - (vi) Transduction
 - (vii) Genotype
 - (viii) Horizontal resistance
 - (ix) Transpiration
 - (x) Systemic fungicide
 - (xi) Sex pheromones
 - (xii) Vectors.
 - Define transgenic plants. What is the purpose of producing them? Give successful transgenic plants with beneficial traits.
- Differentiate between the following (any five): 2.
 - Cybrid and hybrid
 - Monohybrid and dihybrid
 - Dominance and epistasis
 - (iv) Male sterility and self in-compatibility
 - Contact pesticide and systemic pesticide
 - Chemical control and biological control of pests
 - (vii) Pest tolerance and Pest resistance.
 - Explain in detail the principles and practices of integrated pest 45 management.

- Describe any **five** of the following:
 - White ants
- (ii) Sex pheromones

Bt cotton

- (iv) Heterosis
- (v) Incomplete dominance (vi) Brown Plant Hopper
- (vii) Hybridization.
- What is golden rice and in what way it is different from other rice? Similar efforts in other crops with successful case studies may be explained. 45
- (a) Give scientific reasons for any five of the following:
 - Use of sex pheromones is eco-friendly pest control.
 - Bt cotton offers eco-friendly cotton cultivation opportunities.
 - (iii) Balance of life in nature exists in insects.
 - (iv) Cultivation of Land races is beneficial in the long run.
 - Boardux mixture use is allowed under organic farming.
 - (vi) Scientific nutrient management has a role in pest and disease management.
 - (vii) Seed production needs proper isolation distance management.
 - Enumerate etiology, characteristic symptom, disease cycle and method of management of Rice blast or Apple scab or Potato late blight. 60
- Explain following terms (any five):
 - Photoperiodism
 - C3, C4 and CAM plants
 - (iii) Turgorpotential
 - (iv) Foundation seeds
 - Approach grafting
 - (vi) Fertigation
 - (vii) Microbial control of pests.
 - Horticultural crops provide great opportunity for diversifying crops and income under adverse farming conditions also in India. Explain with any case studies. 45