

भारतीय वन सेवा परीक्षा ..... 2011  
Indian Forest Services Examination .....

Serial No.

0019

D-VSF-L-NTB

## AGRICULTURE

### Paper II

Time Allowed : Three Hours

Maximum Marks : 200

### INSTRUCTIONS

*Candidates should attempt questions 1 and 5 which are compulsory, and any THREE of the remaining questions selecting at least ONE question from each Section.*

*The number of marks carried by each question is indicated at the end of the question.*

*Answers must be written in ENGLISH.*

### SECTION—A

1. Attempt any **FOUR** of the following in about **150** words each :— 4×10=40
- (a) Briefly explain the concept of independent assortment, and discuss the reasons for its failure. 10
- (b) List the various systems of male sterility. Briefly describe the two-line and three-line systems of heterosis breeding giving suitable examples. 10
- (c) Define isolation distance, and discuss its significance in seed production with reference to



(Contd.)

- the mode of pollination of crops, giving suitable examples. 10
- (d) Define seed dormancy, and discuss its significance for crop production. 10
- (e) Explain the meaning of marker-assisted selection, and briefly describe its unique advantages and the important limitations. 10
2. (a) Briefly discuss the various strategies for breaking yield plateau: 10
- (b) Explain the meaning of germplasm. Briefly describe the various biotechnological approaches for germplasm conservation. 10
- (c) What are modifying genes ? Discuss their confusing effects, and uses in crop improvement. 10
- (d) Give the meaning of truthful seed, and discuss its significance to Indian agriculture. 10
3. Write short notes on the following in about 150 words each :—
- (a) Complementation test
- (b) Genetic consequences of long-term seed storage
- (c) Guttation
- (d) Biotype differentiation.  $4 \times 10 = 40$
4. Differentiate between the following in about 150 words each :—
- (a)  $C_3$  and  $C_4$  plants
- (b) Micro- and mega-gametogenesis
- (c) Broad and narrow sense heritability
- (d) Pleiotropy and linkage.  $4 \times 10 = 40$



(Contd.)

## SECTION—B

5. Attempt any **FOUR** of the following in about **150** words each :— 4×10=40
- (a) Define graft incompatibility and explain its causes. 10
  - (b) Describe the ecological classification of fruits with examples. 10
  - (c) Define hypersensitive reaction, and explain its mechanism. 10
  - (d) Define preservation of perishable crop produce, and explain its objectives. Briefly describe the different methods of vegetable preservation. 10
  - (e) Define 'economic threshold' for an insect pest, and discuss its relevance to pest management. 10
6. Differentiate between the following. Support your answers with specific examples :—
- (a) Catabolism and anabolism
  - (b) Macro- and micro-nutrients of plants
  - (c) Maturity and ripening of fruits
  - (d) Mycoparasitism and mycophagy. 4×10=40
7. Write short notes on the following, with specific examples, in about **150** words each :—
- (a) Nutritive value of Indian foods
  - (b) Respiratory changes during ripening of fruits
  - (c) Arid zone horticulture
  - (d) Granulation formation in citrus fruits. 4×10=40

8. (a) Describe the package of practices adopted in rose flower production for export. 10
- (b) What are the main constituents of fruits ? Describe their role in human nutrition. 10
- (c) Describe the potato production technology with reference to varieties, nutritional requirements, sowing time, seed rate and plant protection methods. 10
- (d) Briefly discuss the reasons for malnutrition among the Indians. 10