Indian Forest Service
(Main) Exam, 2021

ZCVB-B-AGRC

AGRICULTURE

Paper – II

*Time Allowed : **Three** Hours*

*Maximum Marks : **200***

Question Paper Specific Instructions

Please read each of the following instructions carefully before attempting questions :

*There are **EIGHT** questions in all, out of which **FIVE** are to be attempted.*

*Questions no. **1** and **5** are compulsory. Out of the remaining **SIX** questions, **THREE** are to be attempted selecting at least **ONE** question from each of the two Sections A and B.*

Attempts of questions shall be counted in sequential order. Unless struck off, attempt of a question shall be counted even if attempted partly. Any page or portion of the page left blank in the Question-cum-Answer Booklet must be clearly struck off.

All questions carry equal marks. The number of marks carried by a question/part is indicated against it.

*Answers must be written in **ENGLISH** only.*

SECTION A

Q1. (a) What is the principle of independent assortment in inheritance of genes ? Describe the experiment used by Mendel. *8*

(b) Explain the mechanisms which promote cross-pollination. *8*

(c) Why is quarantine regulation on seeds needed ? Explain the actions to be recommended for this purpose. *8*

(d) Describe the factors affecting the rate of transpiration and its significance in crop production. *8*

(e) Discuss the genetic basis of heterosis and inbreeding depression. *8*

Q2. (a) What is polyploidy ? Define the ways in which polyploidy can occur. *15*

(b) What is micropropagation ? Discuss its advantages. Name the types of explants used in micropropagation in important crops. *15*

(c) Explain how synthetic varieties are produced and indicate their merits. *10*

Q3. (a) Differentiate between linkage and crossing over. Did Mendel recognize the phenomenon of linkage ? Explain. *15*

(b) What is distant hybridization ? Explain how it is used for developing new varieties. *15*

(c) What are the characters of purelines ? Describe the procedure for pureline selection with achievements made in agriculture. *10*

Q4. (a) Describe somaclonal variation and its importance. Discuss the causes and factors influencing such variation. *15*

(b) What is dormancy of seed ? Explain the causes of seed dormancy and methods to break the dormancy. *15*

(c) Discuss the photosynthetic pigments in plants and the factors influencing photosynthesis. *10*

SECTION B

Q5. (a) What are plant growth regulators ? Explain the functions of auxins in plants and mechanism of their action. *8*

(b) Describe the package of practices for banana cultivation in North India. *8*

(c) What are the challenges in fruit and vegetable marketing in India ? Suggest suitable remedial measures. *8*

(d) Define acellular plant pathogens and discuss their mode of natural transmission. Name five acellular pathogens and symptoms induced by them in potato. *8*

(e) Discuss the national plan for supply and distribution of food grains. *8*

Q6. (a) Describe the procedures involved in Hi-tech nursery production. *15*

(b) What are baculovirus and entomopathogenic fungi ? Discuss their role in pest management. *15*

(c) Discuss the relation of food production to national dietary pattern and protein-energy malnutrition. *10*

Q7. (a) Discuss the following : *5×3=15*

(i) Physiological disorders in cauliflower

(ii) Physiological disorders in tomato

(iii) Quincunx system of orchard planting

(b) Describe the biology, nature of damage and management of the following stored grain pests : *5×3=15*

(i) Lesser grain borer

(ii) Pulse beetle

(iii) Rice moth

(c) Describe the influence of photoperiodism and vernalisation in flowering of plants. *10*

Q8. (a) Explain the methods to prolong vase-life of cut flowers. *15*

(b) Describe the following : *5×3=15*

(i) Neonicotinoid insecticide

(ii) Systemic fungicide

(iii) Insecticide granules

(c) Describe the systematic position, nature of damage and management of the following : *4+3+3=10*

(i) Chilli thrips

(ii) Fall armyworm

(iii) Citrus greening