Indian Forest Service (Main) Exam, 2020

JKLO-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.	Ansv	Answer the following:					
	(a)	(a) What is cell? Enlist different organelles of plant cell with a brief description of mitochondria.					
	(b)	What	do you mean by heterosis? Describe the genetic basis of heterosis.	8			
	(c)		ribe the agronomic and genetic principles of quality seed action.	8			
	(d)	Expla	ain in detail the Krebs cycle.	8			
	(e)	Explain the molecular marker approach in crop improvement.					
Q2.	Answer the following:						
	(a)	Describe the role of Cytoplasmic Genetic Male Sterility (CGMS) and Self-incompatibility (SI) systems in hybrid seed production.  15					
	(b)	What do you mean by vertical and horizontal resistance? Give an account of basic principles behind these resistances.					
	(c)		do you mean by conservation of plant genetic resources? Explain contribution in crop improvement in India.	10			
Q3.	Answer the following:						
	(a)	Distinguish between the following, giving suitable examples: $5 \times 3 =$					
		(i)	Breeder seed and Certified seed	5			
		(ii)	Natural selection and Artificial selection	5			
		(iii)	Cytoplasmic and Cytoplasmic-genetic male sterility	5			
	(b)		e the various methods of plant breeding. Describe backcross method its importance in development of crop varieties.	15			
	(c)		ribe the role of mutation in development of disease resistant ties of crops.	10			
Q4.	Ansv	ver th	e following:				
	(a)	Describe the various chromosome structural aberrations with the help of suitable diagrams and discuss their effects on organisms.					
	(b)	Describe various steps involved in seed certification. Give an account of institutions associated with the production of certified seeds in India.  13					
	(c)	Expla	ain various mechanisms for water transport in plants.	10			
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### **SECTION B**

Q5.	Answer the following:					
	(a)	Write down the physiological effects of auxin in plants.				
	(b)	Describe plug-tray technology for seedling production in vegetables.	8			
-	(c)	Describe the principles of fruits and vegetables preservation.	8			
	(d)	Describe the major storage pests of pulses and their control measures.	8			
	(e)	Discuss the strengths and weaknesses of public food-grain distribution system in India.	8			
Q6.	Answer the following:					
	(a)	Describe the package of practices for 'papaya' cultivation in northern India.				
	(b)	Describe the incidence and management of 'leaf curl' and 'mosaic' virus diseases in 'Chilli' and 'Okra' crops.				
	(c)	Give a detailed account of constraints in sustaining the food-grain production in India.	10			
Q7.	Answer the following:					
	(a)	Differentiate between the following: $5 \times 3 =$				
		(i) Formal and Informal styles of gardens	5			
		(ii) Pollinator and Pollinizer	5			
		(iii) Insect vectors and Predators	5			
	(b)	Write a detailed note on incidence and management of fruit fly it 'cucurbits' and 'guava'.				
	(c)	Describe various factors for seed dormancy and methods for breaking the dormancy.				
Q8.	Answer the following:					
	(a)	Describe the year-round production technology of 'Chrysanthemum'.				
	(b)	Describe the production technology for off-season vegetables in India.				
	(c)	Discuss the integrated management practices for insect-pests and diseases in crops.				

