JHARKHAND Rai University
RANCHI

End Semester/Reappear (Semester V) Examination December, 2024

Programme:B. Sc. (Hons.) Agriculture

Course:Crop Improvement – I (Kharif crops) **Full Marks: 50**

Course Code:13 A.315 **Time: 2 Hrs.**

Enrolment no. _____

Q.No.	Questions	CO	Bloom Taxonomy Category	Marks
	Section I			
1	**Short Answer type questions.**			**4 x 5 = 20**
a	Tabulate the centre of origin, scientific name, cultivated species, and two wild relatives of each crops i.e. Ragi, Maize, and Mung.	CO1	Remember	
	or			
	Define domestication. Briefly describe the various important changes that have occurred in crop plants under domestication.	CO1	Understand	
b	How can different mechanisms of cross-pollination be effectively utilized in crop breeding programs to enhance genetic diversity and improve yields?	CO2	Apply	
	or			
	Define plant genetic resources and why they are important for agriculture.	CO2	Understand	
c	Discuss different mechanisms of self-pollination.	CO3	Understand	
	or			
	Discuss different mechanisms of Cross-pollination.	CO3	Understand	
d	How can marker-aided selection be used to improve crop breeding programs?	CO4	Apply	
	or			
	Explain briefly the A-line, B-line and R-line systems of hybrid seed production.	CO4	Understand	
	Section II			
Long Answer type questions.				**2 x 15 = 30**
2	a. Describe briefly the three subspecies or races of cultivated asian rice with suitable examples.	CO1	Remember	
	b. Evaluate the source of variation that has led to the evolution of crop plants, with a suitable example.	CO1	Evaluate	
	or			
	a. Illustrate a floral diagram with the floral formula of pigeon pea.	CO1	Apply	
	b. Design a flowchart that accurately represents the evolutionary history and domestication process of rice.	CO1	Create	
3	a. Design ideal ideotypes for Rice, Maize, and Red Gram, highlighting their main features for optimal performance under specific environmental and agronomic conditions.	CO4	Create	
	b. Define climate-smart crop. Describe climate-resilient crop varieties.	CO4	Remember	
	or			
	a. Critically evaluate the advantages and limitations of marker-aided selection compared to conventional breeding, focusing on their effectiveness, efficiency, and applications in crop improvement."	CO4	Evaluate	
	b. Briefly discuss various classes of seed that we use in a seed production program.	CO4	Analyze	

Course Outcome:

At the end of the course, the students will be able to

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CO1 Know about the centre of origin and wild relatives of various kharif crops.

CO2 Understand the plant's genetic resources, its conservation process and the genetics of qualitative and quantitative characters.

CO3 Compare the new genetic approaches with the conventional approaches.

CO4 Demonstrate the field experiments and apply field techniques for hybrid seed production for achieving a definite ideotype & climate resilient crop varieties for the future.