

**PRACTICE SET**

**End Semester (V<sup>th</sup> Semester.) Examination, Dec., 2025**

**Program: B. Sc. (Hons.) Agriculture**

**Semester: V<sup>th</sup>**

**Course: Crop Improvement – I (Kharif crops)**

**Course Code: 13 A. 315**

**Course Outcomes:**

Course Outcomes (COs):

CO1: Demonstrate understanding of the centres of origin, distribution, and wild relatives of various kharif crops.

CO2: Explain the genetics of qualitative and quantitative traits, and evaluate the conservation and utilization of plant genetic resources.

CO3: Analyse major breeding objectives and compare conventional and modern breeding approaches for the development of improved varieties and hybrids in kharif crops.

CO4: Apply field-based techniques for hybrid seed production, and assess the ideotype concept and development of climate-resilient crop varieties for future.

**Unit / Module-1**

**Section: I (5 Marks questions, only Lower order Thinking -LOT)**

Sl. No.	Model Questions	Bloom Taxonomy	CO
1	Summarise the vavilovian centres of origin of agricultural crops.	Understand	CO1
2	Tabulate the centre of origin, scientific name, cultivated species, and two wild relatives of each crops i.e. Ragi, Maize, and Mung.	Remember	CO1
3	Illustrate a floral diagram with the floral formula of pigeon pea.	Apply	CO1
4	Describe briefly the three subspecies or races of cultivated asian rice with suitable examples.	Remember	CO1
5	Define domestication. Briefly describe the various	Understand	CO1

	important changes that have occurred in crop plants under domestication.		
--	--	--	--

**Section II (15 Marks questions, HOT)**

Sl. No.	Model Questions	Bloom Taxonomy	CO
6	Define biodiversity. Explain different methods for the conservation of biodiversity.	Analyse	CO1
7	Evaluate the source of variation that has led to the evolution of crop plants, with a suitable example.	Evaluate	CO1
8	Explain the breeding objectives and hybrid production techniques in redgram.	Analyse	CO1
9	Explain the major breeding objectives and hybridization technique used for maize.	Analyse	CO1
10	Design a flowchart that accurately represents the evolutionary history and domestication process of rice.	Create	CO1

**Unit / Module-2**

**Section: I (5 Marks questions, only Lower order Thinking -LOT)**

Sl. No.	Model Questions	Bloom Taxonomy	CO
11	Describe the concept of Gene Pool and its types.	Remember	CO2
12	Define vegetative propagation of crops and highlight its main features.	Remember	CO2
13	How can different mechanisms of cross-pollination be effectively utilized in crop breeding programs to enhance genetic diversity and improve yields	Apply	CO2
14	Define plant genetic resources and why they are important for agriculture.	Understand	CO2
15	Describe the concept of heritability and genetic advance	Understand	CO2

**Section II (15 Marks questions, HOT)**

Sl.	Model Questions	Bloom Taxonomy	CO
-----	-----------------	----------------	----

No.			
16	Explain in detail the conventional and non-conventional approaches for developing varieties for plant breeding. Analyze various aspects involved in exploring and collecting plant genetic resources.	Analyse	CO3
17	Evaluate different methods used for conserving plant genetic resources, their benefits, and limitations in the context of biodiversity conservation	Evaluate	CO2
18	Explain vegetative propagation and plan vegetative propagation techniques to cultivate sugarcane in india?	Create	CO2
19	Analyse the procedure of mass selection and pure line selection.	Analyse	CO2
20	Differentiate between quantitative and qualitative characters of plants with suitable examples.	Analyse	CO2

### Unit / Module-3

#### Section: I (5 Marks questions, only Lower order Thinking -LOT)

Sl. No.	Model Questions	Bloom Taxonomy	CO
21	Describe briefly the term plant introduction.	Remember	CO3
22	Discuss different mechanisms of self-pollination.	Understand	CO3
23	Discuss different mechanisms of Cross-pollination.	Understand	CO3
24	Describe briefly the major breeding objective of oilseed.	Remember	CO3
25	Illustrate the breeding objective of green gram	Apply	CO3

#### Section: II (15 Marks questions, HOT)

Sl. No.	Model Questions	Bloom Taxonomy	CO

26	Develop a breeding strategy to enhance resistance to specific biotic stress in crops, incorporating appropriate methods and tools to achieve the desired outcome.	Create	CO3
27	Explain in detail the differences between mass selection method and pureline selection method of plant breeding.	Analyse	CO3
28	Explain in detail the various breeding method for crop improvement of selected quality parameters.	Analyse	CO3
29	Differentiate between the following: (a) Stability and adaptability. (b) Drought escape and drought avoidance. (c) Genetic resistance and gene pyramiding.	Analyse	CO3
30	Evaluate the suitability of various breeding methods for developing resistance to abiotic stress in crops, and justify which method would be the most effective under specific conditions.	Evaluate	CO3

### **Unit / Module-4**

#### **Section: I (5 Marks questions, only Lower order Thinking -LOT)**

Sl. No.	Model Questions	Bloom Taxonomy	CO
31	Discuss the various classes of seeds involved in a seed production program and explain their significance.	Understand	CO4
32	Explain how marker-aided selection(MAS) is used to improve crop breeding programs and explain its advantage?	Understand	CO4
33	Explain briefly the A-line, B-line and R-line systems of hybrid seed production.	Understand	CO4
34	Define climate-smart crop. Describe climate-resilient crop varieties for sustainable agriculture	Remember	CO4
35	Define crop ideotype along with its importance.	Remember	CO4

**Section II (15 Marks questions, &HOT)**

Sl. No.	Model Questions	Bloom Taxonomy	
36	Design ideal ideotypes for Rice, Maize, and Red Gram, highlighting their main features for optimal performance under specific environmental and agronomic conditions.	Create	CO4
37	Evaluate the advantages and limitations of marker-aided selection compared to conventional breeding, focusing on their effectiveness, efficiency, and applications in crop improvement."	Evaluate	CO4
38	Analyse the terms single cross, test cross, out cross, top cross and double cross.	Analyse	CO4
39	Describe and differentiate between traditional breeding and ideotype Breeding method in crop improvement..	Analyse	CO4
40	Design a step-by-step protocol for producing hybrid seeds in rice.	Create	CO4

**Summary Sheet:**

**CO Wise**

CO	Q. No	Marks
CO1	1,2,3,4,5,6,7,8,9,10	100
CO2	11,12,13,14,15,17,18,19,20	95
CO3	16,21,22,23,24,25,26,27,28,29,30	105
CO4	31,32,33,34,35,36,37,38,39,40	100
<b>Total</b>		<b>400</b>

**Unit Wise**

Unit	Q. No	Marks
Unit 1	1,2,3,4,5,6,7,8,9,10	100
Unit 2	11,12,13,14,15,16,17,18,19,20	100
Unit 3	21,22,23,24,25,26,27,28,29,30	100
Unit 4	31,32,33,34,35,36,37,38,39,40	100
<b>Total</b>		<b>400</b>

**Blooms Taxonomy Level (BTL) Wise**

BTL	Q. No	Marks
LOT	1,2,3,4,5,11,12,13,14,15,21,22,23,24,25,31,32,33,34,35	100

HOT	6,7,8,9,10,16,17,18,19,20,26,27,28,29,30,36,37,38,39,40	300
<b>Total</b>		<b>400</b>

-----End-----

**Prepared By:**

**Mrs. Poonam Singh**

**Reviewed By:**

**Dr. Neeta Shweta Kerketta**

**Disclaimer:** - This is a practice set. The Question in End semester examination will differ from the practice set. This practice set is meant for practice only.