

Agriculture and Forestry University
Office of the Controller of Examination
Rampur, Chitwan
2079, *Month*

Faculty	Agriculture		
Exam	Regular		
Level	Bachelor	Full Marks	40
Program	B. Sc. Ag.	Pass Marks	16
Year and semester	2 nd year, 4 th semester	Time	2:00 hrs.

Subject:- PLB 202, 3(2+1) Introductory Plant Breeding

Candidates are required to give their answers in their own words as far as practicable.
All questions carry equal marks. Answer any 10 questions.

1. "Plant breeding is an art as well as science." Justify. (4)
2. Define domestication. Describe what domestication syndrome is while providing suitable example. (1+3)
3. What is plant introduction ? Discuss its relevance in crop breeding. (1+3)
4. Differentiate qualitative and quantitative traits. What are transgressive segregants ? (2+2)
5. What is meant by a variety ? Compare and contrast a variety with a genotype. (1 + 3)
6. Why breeding for quantitative traits is difficult ? For a quantitative character governed by 6 (six) genes in a diploid crop, what is the theoretical minimum size of the population of F₂ generation such that even the rarest of phenotypes could be found. Assume each locus is composed of a pair of dominant and recessive alleles in the F₁ heterozygote. (2 + 2)
7. Write short notes on (any two): (2+ 2)
 - a. Progeny testing
 - b. Pureline selection
 - c. Chimerism
8. Write differences between pedigree selection and bulk selection for breeding of self-pollinated crops. (4)
9. What are the pre-conditions of successful hybridization ? Describe pollination control mechanisms. (2 + 2)
10. For a quantitative trait in a random mating population, mean is 100 and variation is 240. The regression of the offspring on mid-parent value is 0.25. Truncation selection is practiced with a selection differential of 32. What is the expected mean in the next generation ? (4)
11. What are the characteristics of cross-breeding species ? What is meant by population improvement ? (2 + 2)