

M.Sc. (Ag.) Examination, 2018
Semester-II
Genetics and Plant Breeding
Course- GPB-504
(Principles of Quantitative Genetics)

Time: Three Hours

Full Mark: 50

Questions are of value as indicated in the margin

Question no. **8** is compulsory and answers any other **four questions**.

1. What do you mean by broad sense and narrow sense heritabilities. Why are these considered very important by plant breeders? 5+5=10
 2. Briefly describe Metroglyph analysis. Explain the genotype, phenotypic and environmental variance. Describe the significance of path coefficient analysis in plant breeding. 2+4+4=10
 3. What are the advantages of Randomized Complete Block Design (RCBD)? Why is augmented design useful? What is split plot design? 4+4+2=10
 4. Write down the inferences that can be drawn from the V_r-W_r graph depending upon the position of regression line. What are the draw backs of diallel analysis? 5+5=10
 5. What do you mean by principal components? Explain hierarchical clustering technique. 4+6=10
 6. What is mapping population? Describe different kinds of mapping populations. Describe the steps of QTL mapping. 2+3+5=10
 7. Differentiate qualitative and quantitative inheritance. Differentiate full diallel and half diallel. 5+5=10
 8. Write short notes on the following (**any five**): 5×2=10
 - (a) Selection differential
 - (b) Multiple factor hypothesis
 - (c) D^2 analysis
 - (d) GXE interaction
 - (e) Genetic advance
 - (f) Map based cloning
 - (g) LOD score
 - (h) Line x Tester analysis
-