

THE LIST OF QUESTIONS FOR FINAL EXAMINATION

1. Descriptive multivariate statistics: Sample mean, covariance and correlation as matrix operations.
2. Statistical distance in m-dimensional Euclidean space.
3. Matrix algebra and Random vectors.
4. Multivariate Normal Distribution as a model.
5. Sample Geometry and Random Sampling.
6. Brownian Motion and simple properties.
7. The expected values of the sample mean and covariance matrix. Generalized variance.
8. Inferences about mean vector.
9. The generalization of Student's ratio. Hotelling distribution.
10. Hotelling's T^2 and some properties of its density function.
11. Gamma distribution.
12. Spectral decomposition: Eigenvalue-eigenvector pairs.
13. Linear regression. The methods of least squares.
14. Multivariate linear regression models.
15. Conditional distribution and conditional expectation.
16. Multivariate multiple regression.
17. Poisson-Dirichlet Distribution as a model.