

Biostatistics – Range of Exam Questions

1. Categories of data in statistics
2. Statistical sets – sample, population
3. characteristics of variables – frequency distribution
 - empirical, theoretical curve
 - probability distributions
 - proportions of distribution
4. Measures of central tendency – mean, AVG, median, mode (description, calculation, properties)
5. Measures of variability – range, variance, SD, coef. of variability (description, calculation, properties)
6. Distributions commonly used in statistics (description, properties, use)
 - for populations: Gaussian normal d., nonnormal d.
 - for samples: *t*-distribution, chi-square distr., F-distribution
7. Statistical testing, null hypotheses, test statistic
8. Types of statistical tests
9. F-test : description, calculations, conclusions, use
10. t-test : description, types, calculations, conclusions, use
11. Functional relation between 2 variables
12. Correlative relation between 2 variables in biology, types of correl. relations
13. Linear relation: estimation of the best-fit function (coefficients of regression line – calculation, properties)
14. Correlation analysis in linear relation – correlation coefficient (description, properties)
15. Significance of Correlation coefficient
16. Nonlinear correlation – Spearman correl. coefficient (properties, calculation, use)
17. Categorical data
 - empirical, theoretical frequencies and proportions
 - chi-square test for differences between frequencies (calculation, conclusions, use)
 - contingency tables (types, description, use)