Statistics practical class 3

1) Load table bioenv3 and perform the following hypothesis tests:
    1) Can we claim that the population mean of species “a” is bigger than 10?
    2) Is the population mean of species “b” different from 10?
    3) Are the population means of species “a” and “b” different from each other? What do you see in the degrees of freedom? Try setting the var.equal argument to TRUE. Use ?t.test to find out what has happened.

2) Estimate the statistical power of the previous tests.

3) Generate a data set of size n = 35 from a normal distribution N(3,5). Estimate the mean and its confidence interval for a 95% confidence level.

4) Get a sample of size n = 50 for the following 3 distributions: N(4,5), N(6,5) and N(12,4.5). Test whether the means of these samples have a significant difference.

5) Using the data from table bioenv3, test if there is an association between the abundance of species “a” and the different categorical variables.

6) Generate a sample of size n = 50 from two Poisson distributions: Pois(3) and Pois(7). Test by randomization if the means of these two distributions differ.