STATISTICS APPLIED TO BUSINESS ADMINISTRATION ACADEMIC YEAR 2024-2025 PRACTICAL EXERCISE 8 (30 MINUTES)

Date: _____

Complete name:_____ ID number:_____

EXERCISE 1 (6 POINTS)

A given individual wished to buy a specific type of vacuum cleaner. In order to find out possible price ranges for it, s/he visits 25 different appliance stores and finds out that the sample average price for a vacuum cleaner in those stores is 180 euros, with a sample standard deviation of 35 euros. It is assumed that the price for those specific vacuum cleaners follows a normal distribution.

- 1. <u>(4 Points)</u> Obtain a 95% confidence interval for the mean price for that specific vacuum cleaner type. At the 5% significance level, test the null hypothesis that the mean price for this specific type of vacuum cleaner is at most equal to 165 euros, against the laternative hypothesis that it is larger than this value.
- 2. <u>(2 Points)</u> Obtain a 90% confidence interval for the variance of the price for this specific type of vacuum cleaner.

EXERCISE 2 (4 POINTS)

In a given course at the School of Business and Economics we wish to test the null hypothesis that the proportion of students passing the course is at least 60%, against the alternative that it is actually smaller than 60%. We have taken a r.s. of size n = 150 students in a given year, observing that 70 of them passed the course that year. At the 10% significance level, what would be the decision of the test?