## STATISTICS APPLIED TO BUSINESS ADMINISTRATION ACADEMIC YEAR 2023-2024 PRACTICAL EXERCISE 8 (30 MINUTES)

Date: \_\_\_\_\_

Complete name:\_\_\_\_\_ ID number:\_\_\_\_\_

## EXERCISE 1 (5 POINTS)

In a given manufacturing process we wish to test the null hypothesis that the proportion of defective parts produced is no larger than 10%, against the alternative that it is actually larger than 10%. We have taken a r.s. of size n = 200, observing 25 defective parts.

- 1. (2.5 Points) Find a 90% confidence interval for the proportion of defective parts produced in the manufacturing process.
- 2. (2.5 points) At the 10% significance level, what would be the decision of the test?

## EXERCISE 2 (5 POINTS)

It is known that the expense in candies in a given population follows a normal distribution and it is claimed that the variance of these expenses made by individuals younger than 20 years,  $\sigma_1^2$ , is larger than or equal than the variance in these expenses made by older individuals,  $\sigma_2^2$ . In order to test  $H_0: \sigma_1^2 \ge \sigma_2^2$  against  $H_1: \sigma_1^2 < \sigma_2^2$ , we have taken two separate r.s. of size 31 in each of the two populations, so that  $s_1^2 = 62$  and  $s_2^2 = 65$ . At the 10% significance level, what would be the decision of the test?