

**STATISTICS APPLIED TO BUSINESS
ADMINISTRATION. ACADEMIC YEAR 2017-2018
PRACTICAL EXERCISES 1 AND 2 (25 MINUTES)**

Date: _____

Complete name: _____ ID number: _____

EXERCISE 1 (10 POINTS)

Let Z be a r.v. such that it follows a $b(p, n)$ binomial distribution, with mean $E(Z) = 15$ and variance $\text{Var}(Z) = 3.75$.

1. **(3 points)** Compute the probability $P(Z = 15)$.
2. **(2 points)** What is the characteristic function for this r.v.?
3. **(2 points)** Compute the probability $P(Z > 19)$.
4. **(3 points)** Compute the probability $P(15 < Z \leq 17)$.

EXERCISE 2 (10 POINTS)

The number of clients that arrive each hour at a given store follows a Poisson distribution with mean equal to 4. We assume independence between the different clients arriving at the store.

1. (2 points) What is the probability that, in a given hour, nobody arrives at the store?
2. (2 points) What is (are) the most likely number(s) of individuals that arrive, **in a three-hour period**, at the store?
3. (2 points) What is the probability that, **in a two-hour period**, less than 10 individuals arrive at the store?
4. (4 points) What is the probability that, **in a nine-hour period**, at least 31 individuals arrive at the store?