STATISTICS APPLIED TO BUSINESS ADMINISTRATION. ACADEMIC YEAR 2018-2019 PRACTICAL EXERCISE 3 (20 MINUTES)

Date: _____

Complete name:_____ ID number:_____

EXERCISE 1 (4 POINTS)

Let X be a r.v. such that $X \in \gamma(a, r)$, and that its mean and variance are equal to 3 and 6, respectively.

- 1. (2 points) Providing all relevant details, find the distribution of the r.v. X.
- 2. (2 points) Providing all relevant details, compute the value of $\overline{P(0.584 < X < 9.35)}$.

EXERCISE 2 (6 POINTS)

Let X, Y, W and Z be four independent r.v. such that: $X \in N(0,1), Y \in N(0,9), Z \in \gamma(\frac{1}{2}, \frac{1}{2})$ and $W \in \gamma(\frac{1}{2}, \frac{5}{2})$.

- 1. (2 points) If we define the r.v. $Y_1 = Z + W$, compute $P(Y_1 < 14.4)$.
- 2. (2 points) If we define the r.v. $Y_2 = \frac{6X^2}{Y_1}$, find the value of k such that $\overline{P(Y_2 \leq k)} = 0.10$.
- 3. (2 points) If we define the r.v. $Y_3 = \frac{3X}{Y}$, then compute k such that $\overline{P(Y_3 \leq k)} = 0.80$.